

**This document was too large to scan
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been divided into smaller sections.**

Section 1 of 3

Document Information			
Document #	0201741/02-RCA-0272	Revision	
Title	QUARTERLY NOTIFICATION OF CLASS 1 MODIFICATIONS TO THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT, DANGEROUS WASTE PORTION (QUARTER ENDING MARCH 31, 2002 - PERMIT CONDITION I.C.3)		
Date	04/09/2002		
Originator	J. HEBDON, R. H. GURSKE, R. D. (ROBY) <i>KMGE</i>	Originator Co.	DOE, FH, PNNL
Recipient	L. E. RUUD	Recipient Co.	DOEC
References			
Keywords			
Projects			
Other Information			

ENVIRONMENTAL PORTAL DISTRIBUTION COVERSHEET**REGULATORY INFORMATION**

Page 1 of 2

Author

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R H Gurske/FH

R D Enge/PNNL

Addressee

L E Ruud/DOEC

Correspondence No

0201741

DOE RL 02 RCA 0272

CC Recd 04/15/2002

Subject

**QUARTERLY NOTIFICATION OF CLASS 1 MODIFICATIONS TO THE HANFORD
FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT
DANGEROUS WASTE PORTION (QUARTER ENDING MARCH 31 2002 - PERMIT
CONDITION I C 3)****DISTRIBUTION**

Approval	Date	Name	Location	w/att
		Environmental Portal	A3 01	X
		<u>Fluor Hanford</u>		
		L E Borneman	T6 16	X
		R C Bowman	A1 14	X
		R C Brunke	N1 26	X
		S B Cherry	B3 15	X
		S B Clifford	N1 25	X
		K F Clouse	N1 25	X
		L M Culley	B3 70	X
		N R Dahl	N2 57	X
		T T Daniels	B3 70	X
		L P Drediker	N1 24	X
		B J Dixon	R3 32	X
		R H Engelmann	N1 25	X
		R H Gurske	H8 73	X
		K A Hadley	T5 57	X
		J W Hales	A1 14	X
		J S Hertzell	A1 14	X
		J E Hyatt	N1 24	X
		L G Jugulon	H8 73	X
		C A Kooiker	N2 57	X
		A G Miskho	N1 26	X
		T W Noland	H8 67	X
		J K Perry	L1 04	X
		S M Price	H8 67	X
		F A Ruck III	N1 26	X
		A R Sherwood	N1 26	X

ENVIRONMENTAL PORTAL

For Questions or Distribution/MSIN Contact

OUTLOOK ADDRESS ^CORRESPONDENCE CONTROL PHMC

Contact

376 8111 or 372 3931

ENVIRONMENTAL PORTAL DISTRIBUTION COVERSHEET**REGULATORY INFORMATION**

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Author

J Hebdon/DOE

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FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT
DANGEROUS WASTE PORTION (QUARTER ENDING MARCH 31 2002 - PERMIT
CONDITION I C 3)**

DISTRIBUTION

Approval	Date	Name	Location	w/att
		<u>Fluor Hanford continued</u>		
		S A Szendre	N1 26	X
		S A Thompson	N1 25	X
		D J Watson	X3 79	X
		J F Williams Jr	N1 25	X
		L F Willis	H8 73	X
		<u>Pacific Northwest National Laboratory</u>		
		S D Cooke (PNNL)	K1 67	X
		R D Enge (PNNL)	P7 75	X
		A K Ikenberry (PNNL)	P7 79	X
		K A Poston (PNNL)	P7 79	X
		<u>Bechtel Hanford Inc</u>		
		^BHI Document & Info Services		X
		R J Landon (BHI)	H0 02	X
		R H Wyer (BHI)	H0 09	X
		<u>U S Department of Energy, Richland Operations Office</u>		
		J J Bevelacqua	H6 60	X
		J B Hall	A2 15	X
		A P Larsen	A5 15	X
		E M Matthin	A5 15	X
		A C McKarns	A5 15	X
		H M Rodriguez	A5 15	X
		S D Stubblebine	H6 60	X
		B D Williamson	A4 52	X



Department of Energy
Richland Operations Office
P O Box 550
Richland Washington 99352

APR 09 2002

02 RCA 0272

Ms L E Ruud Permit Specialist
Nuclear Waste Program
State of Washington
Department of Ecology
1315 West Fourth Avenue
Kennewick Washington 99336

Dear Ms Ruud

**QUARTERLY NOTIFICATION OF CLASS 1 MODIFICATIONS TO THE HANFORD
FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT
DANGEROUS WASTE PORTION (QUARTER ENDING MARCH 31 2002-PERMIT
CONDITION I C 3)**

In accordance with Condition I C 3 of the Hanford Facility RCRA Permit enclosed for your notification are the Class 1 modifications to the Hanford Facility RCRA Permit DW Portion. Modifications this quarter included updating information in the List of Attachments Part III and Part V of the RCRA Permit DW Portion. The List of Attachments Class 1 modifications pertain to Attachment 4. The Part III Class 1 modifications pertain to the 305 B Storage Facility, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility, 242 A Evaporator, and 325 Hazardous Waste Treatment Units. The Part V Class 1 modifications pertain to the 300 Area Waste Acid Treatment System. The Class 1 modifications are being made to ensure that all activities conducted are in compliance with the RCRA Permit DW Portion.

Ms L E Ruud
02 RCA 0272

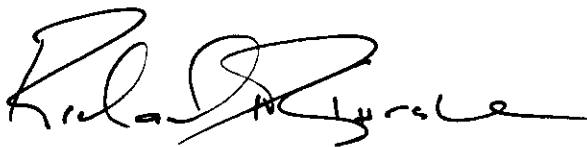
2

APR 09 2002

Should you have any questions regarding this information please contact Dee W Lloyd
Regulatory Compliance and Analysis Division on (509) 372 2299



Joel Hebdon Director
Regulatory Compliance and
Analysis Division
DOE Richland Operations Office



Richard H Gurske Director
Environment & Regulation
Fluor Hanford Inc



Roby D Enge Director
Environment Safety Health and Quality
Pacific Northwest National Laboratory

Enclosure

cc w/encl

F W Bond Ecology
L J Cusack Ecology
R D Enge PNNL
R Gay CTUIR
R H Gurske FHI
A K Ikenberry PNNL
F Jamison Ecology

cc w/o encl

M Anderson Moore Ecology

R Jim YN

R J Landon BHI

M A Wilson Ecology

S A Thompson FHI

P Sobotta NPT

Administrative Record H6 08

HF Operating Record G1 27

Ecology NWP Kennewick Library

Environmental Portal LMSI



HANFORD
Environmental

**Department of Energy
Richland Operations Office**

DOCUMENT RECEIPT VERIFICATION

Document Title

02-RCA-0272

QUARTERLY NOTIFICATION OF CLASS 1 MODIFICATIONS TO THE HANFORD FACILITY
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT DANGEROUS WASTE
PORTION (DW PORTION) (QUARTER ENDING MARCH 31 2002 PERMIT CONDITION I C 3)

Addressee

Ms Laura Ruud
Permit Specialist
Nuclear Waste Program
State of Washington
Department of Ecology
1315 West Fourth Avenue
Kennewick Washington 99336

RECEIVED

Date Received

APR 09 2002

Department of Ecology
NWP Kennewick

Receiver Signature

Manzani

Hanford Facility RCRA Permit Modification Notification Forms

List of Attachments


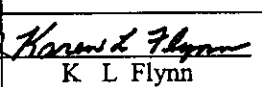
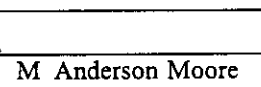
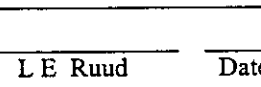
Attachment 4, Hanford Emergency Management Plan

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Hanford Facility RCRA Permit Modification Notification Form				
Unit Hanford Emergency Management Plan	Permit Part & Chapter List of Attachments, Attachment 4			
<u>Description of Modification</u> 14.3 7 Plan Locations Copies of this plan are maintained at RL and ORP Emergency Preparedness program offices each contractor Emergency Preparedness office and other locations as specified by the respective contractor Hanford Fire Department (area fire stations) Occurrence Notification Center DOE Hanford Emergency Operations Center (primary and alternate) and the Patrol Operations Center Copies of the plan are also maintained at the following offsite agencies (per their request) to meet the WAC 173 303 350(4) requirement Kennewick Pasco Police Department West Richland Police Department Washington State Patrol Adams County Sheriff's Office Pasco Fire Department Richland Fire Department College Place Fire Department City of Kennewick Kadlec Medical Center Our Lady of Lourdes Health Center Kennewick General Hospital Benton County Emergency Management Center Franklin County Emergency Management Center and Grant County Emergency Management Center Copies of location specific documentation are provided to offsite agencies as requested Per agreement with Ecology location specific documentation is offered to offsite agencies every two years				
Modification Class ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes	X			
Relevant WAC 173 303 830 Appendix I Modification A 1				
<u>Enter wording of the modification from WAC 173 303 830, Appendix I citation</u>				
A General Permit Provisions				
1 Administrative and informational changes				
Submitted by Co Operator	Reviewed by RL	Reviewed by Ecology		Reviewed by Ecology
 G B Griffin Date	 K L Flynn Date	 M Anderson Moore Date		 L E Ruud Date

¹ Class 1 modifications requiring prior Agency approval

² This is only an advanced notification of an intended Class ¹1 2 or 3 modification, this should be followed with a formal modification request and consequently implement the required Public Involvement processes when required

³ If the proposed modification does not match any modification listed in WAC 173 303 830 Appendix I then the proposed modification should automatically be given a Class 3 status This status may be maintained by the Department of Ecology or down graded to ¹1 if appropriate

Hanford Emergency Management Plan

List of Attachments Attachment 4

Documentation Crosswalk Matrix

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Modification Class ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes	X			

Relevant WAC 173 303 830 Appendix I Modification

A1

Enter wording of the modification from WAC 173 303 830, Appendix I citation

A General Permit Provisions

1 Administrative and informational changes

Submitted by Co Operator	Reviewed by RL	Reviewed by Ecology	Reviewed by Ecology
<i>G B Griffin</i> G B Griffin	<i>K L Flynn</i> K L Flynn		
<i>1/2/02</i> Date	<i>01/02/02</i> Date		
		M Anderson Moore	L E Ruud
		Date	Date

¹ Class 1 modifications requiring prior Agency approval

² This is only an advanced notification of an intended Class '1 2 or 3 modification this should be followed with a formal modification request and consequently implement the required Public Involvement processes when required

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Hanford Facility RCRA Permit Modification
List of Attachments
Attachment 4, Hanford Emergency Management Plan

Replacement Sections

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Appendix A

Hanford Facility RCRA Permit Modification
List of Attachments
Attachment 4, Hanford Emergency Management Plan

Replacement Sections

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Section 14 0

Appendix A

14 0 PROGRAM ADMINISTRATION

The basic purpose of program administration is to establish and maintain effective organizational management and control of the emergency management program. Even though the program is now available to ORP and its contractors, RL retains the primary responsibility to oversee, coordinate, and assess the emergency management programs of the Hanford Site contractors. RL will ensure the preparation and maintenance of plans and procedures necessary for RL/ORP to carry out its responsibilities during an emergency and will schedule through ORP any activities (i.e., drills, exercises, assessments) of ORP contractors.

14 1 EMERGENCY MANAGEMENT PROGRAM ADMINISTRATOR

The RL/ORP Managers have the responsibility for administering the overall emergency management program for the Hanford Site. The RL/ORP Managers have delegated the authority to develop, implement, and maintain the emergency management program to the RL SES director; however, key program decisions and/or policy changes will be coordinated with ORP prior to implementation. The RL Emergency Preparedness staff of RL SES carries out these responsibilities.

Each site contractor shall designate an individual to administer the site level emergency management program and/or to administer/assess the facility level emergency management program. This individual shall also assist, as necessary, in the development and maintenance of this plan and applicable implementing procedures, development of the Hanford Emergency Readiness Assurance Plan (ERAP) and annual updates, development and conduct of training and exercise programs, coordination of assessment activities, development of related documentation, and coordination of emergency resources.

Each building organization shall designate an individual (e.g., BED, BW, emergency preparedness coordinator) responsible to administer the emergency management program at the facility level.

14 1 1 Emergency Management Functions at the U.S. Department of Energy, Richland Operations Office

The RL/ORP Emergency Preparedness staff functions, as appropriate to the responsibilities described above, related to overseeing site contractor emergency preparedness programs include:

- ensuring that hazards assessments and hazards surveys for emergency planning are adequately performed and documented.

Program Administration

reviewing and recommending approval of the annual Hanford ERAP developed by site contractors and RL/ORP and submitting it to the CSO and the DOE HQ Director of Emergency Management for inclusion in the annual report

assessing facility emergency preparedness programs to verify compliance with appropriate Federal and state directives and policy and providing the results/conclusions to the CSO and the DOE HQ Director of Emergency Management

submitting DOE Order requirement exemption requests as necessary for approval by the Under Secretary which document the basis for each exemption and establishes and justifies alternatives equivalent to or exceeding the Order

reviewing and approving the Hanford Site emergency exercise program and reviewing exercise evaluation and quarterly corrective action status reports and

reviewing written reports of evaluations of declared events

RL Emergency Preparedness staff functions to ensure that RL/ORP can carry out its responsibilities in an emergency include

ensuring that annual budgets and mission and function statements reflect implementation policies and decisions

assigning a senior emergency preparedness representative to the Emergency Management Advisory Committee

revising and updating this plan and the *Emergency Plan Implementing Procedures* (DOE 0223) in accordance with DOE O 151 1 and other appropriate Federal and state regulations and ensuring integration within the overall emergency management program

interfacing with Federal tribal state and local emergency management organizations

maintaining and negotiating agreements with state and county response agencies Federal assistance agencies and maintaining agreements with medical and fire support agencies

providing training to state and local emergency response personnel as requested

recruiting and training staff for the DOE Hanford EOC

maintaining the DOE Hanford EOC facility and equipment and

maintaining the DOE Region 8 RAP

Program Administration

Additional organizational responsibility authority and functions within RL for implementing requirements from DOE O 151 1 and other DOE Directives and Federal and state laws are delineated in the *Richland Operations Office Functions Responsibilities and Authorities Manual*

14 2 EMERGENCY READINESS ASSURANCE PROGRAM

14 2 1 Hanford Emergency Readiness Assurance Plan

Based upon the organization and management of the Hanford Site emergency management program individual facility ERAPS are not provided Rather RL/ORP and site contractor Emergency Preparedness personnel participate in the preparation of a consolidated Hanford ERAP

The Hanford ERAP shall be a planning tool to identify and develop needed resources and improvements The Hanford ERAP shall highlight any significant changes in emergency management programs (i e planning bases organizations exemptions) from previous ERAPs as well as comparing actual achievements to goals milestones and objectives If applicable the Hanford ERAP shall be reviewed for classified or controlled information prior to submittal

Site contractor Emergency Preparedness personnel shall submit initial or updated emergency planning and preparedness activities information as indicated above to RL SES by September 30 each year for review and inclusion in the Hanford ERAP The information shall cover a planning cycle of five years beginning the next October 1

The RL Emergency Preparedness staff shall review and finalize the Hanford ERAP for approval by the RL SES director The RL staff will obtain concurrence from ORP prior to ERAP approval by the RL SES director The consolidated Hanford ERAP shall be submitted to the CSO and DOE HQ Director of Emergency Management by November 30 each year

14 2 2 Emergency Readiness Assurance Assessments/Appraisals

RL/ORP shall periodically review the ability of contractor operated facilities to meet requirements of the DOE Emergency Management System Appraisals and assessments shall be based on specific standards and criteria published by the DOE HQ Director of Emergency Management Appraisal findings shall be acknowledged by the appraised activity within 90 days of receipt of findings with a corresponding plan for correction The RL/ORP appraising organization shall determine closure of open or unresolved appraisal findings

Additionally RL/ORP shall assess the emergency management program of each site contractor under its supervision Each site contractor shall be assessed at least once every 3 years RL/ORP shall notify the CSO of its assessment schedule

Contractor operated facilities shall conduct an annual internal readiness assurance assessment of their emergency management programs. Corrective actions shall be tracked and status reports provided to RL/ORP. In addition site contractors shall assist external organizations (i.e. RL/ORP DOE HQ) in scheduling and conducting evaluations appraisals and assessments of their respective facilities respond to external evaluation appraisal and assessment findings within 90 days of receipt of findings and resolve all evaluation appraisal and assessment findings with the responsible organization or request approval for an exemption to the requirements.

RL/ORP and contractor assessment results shall be provided to the CSO and DOE HQ Director of Emergency Management through documentation in the Hanford ERAP.

14 2 3 Lessons Learned

RL/ORP and each site contractor emergency management program shall include a system to track and identify correction of findings or lessons learned from training drills exercises and actual responses.

14 2 4 Emergency Operations Metrics Data

RL/ORP and site contractors are required to report Emergency Operations metrics data quarterly. The metrics data is based on performance measures developed by the DOE HQ Office of Security and Emergency Operations.

Site contractors shall submit applicable metrics data to RL SES within five working days after the last day of the previous fiscal year quarter for review and inclusion in the consolidated Hanford metrics data spreadsheet. Data may be projected as necessary in order to meet the submittal date.

RL SES shall review collate and finalize the metrics data and electronically disseminate the consolidated Hanford metrics data spreadsheet to the CSO and DOE HQ Office of Emergency Operations within 15 days after the last day of the previous fiscal year quarter.

14 3 DOCUMENT CONTROL

This plan and RL/ORP and site contractor implementing procedures shall be controlled distribution documents. RL/ORP and site contractors shall use a document control system to ensure that controlled copies are up to date and available at locations where they may be needed in an emergency. RL/ORP and site contractors shall determine the internal and external controlled copy distribution of the emergency plan and respective implementing procedures.

**14 3 1 Review and Update of the Hanford Emergency Management Plan and
U S Department of Energy Richland Operations Office/Office of River Protection
and Site Contractor Implementing Procedures**

This plan and the *Emergency Plan Implementing Procedures* (DOE 0223) will be reviewed annually by the RL/ORP and the appropriate response organizations and agencies RL SES is responsible for the coordination of this review and any resulting actions RL SES will identify specific changes deemed necessary and will ensure implementation of the revisions

Revising and updating of this plan and/or the *Emergency Plan Implementing Procedures* (DOE 0223) may be initiated at any time deemed necessary by RL SES Changes and/or amendments shall be incorporated by RL SES concurred upon by ORP and site contractors and approved by the RL/ORP Manager or his designee

A controlled copy of the approved plan and the *Emergency Plan Implementing Procedures* (DOE 0223) shall be submitted to the DOE HQ Director of Emergency Management the CSO and to the DOE HQ EOC

Site contractor emergency plans (e g building emergency plans) and implementing procedures shall be reviewed at least annually

14 3 1 1 Review and Update Based on WAC 173-303

Portions of this plan together with Hanford Site location/activity specific documentation established to meet contingency plan requirements must be reviewed and immediately amended if necessary whenever

applicable regulations or the Hanford Facility RCRA Permit are revised

this plan or the location/activity specific building emergency plan/procedure fails in an emergency

the Hanford Site facilities/activities change (e g design operation maintenance etc) in a way that materially increases the potential for fires explosions or releases of dangerous waste or dangerous waste constituents or in a way that changes the response necessary in an emergency or

the list of emergency equipment changes

14 3 2 Review of Agreements

Agreements with local state and Federal officials and agencies (as contained in Appendix B) are maintained by RL SES and are reviewed and/or updated at least annually. Updates may be initiated either by RL or by the agreement official or agency. Updates are documented by amendment marks on individual pages of the agreement unless comprehensive amendments are required. Agreements shall be reviewed annually and revised as necessary. RL SES shall maintain documentation of the annual review.

14 3 3 Classified Information

RL/ORP and site contractors shall ensure that emergency preparedness documents such as plans, procedures, scenarios, and assessments are reviewed as necessary for classified and Unclassified Controlled Nuclear Information (UCNI) by an authorized derivative classifier or UCNI reviewing official.

14 3 4 Supporting Documents

RL SES shall maintain copies of documents and records that support the emergency management program (i.e., technical data, hazards assessments, ERAPs, and plans and procedures). Records of training, drills, and exercises shall be maintained to document status of the program and provide direction for improvements.

Hanford Site contractors shall maintain records that will provide documentation of the facility emergency preparedness program and to support the preparation of the ERAP work plans, etc.

14 3 5 Vital Records

A program shall be established to ensure that vital records, regardless of media, essential to continued functioning or reconstruction of an organization during and after an emergency, are maintained and available per 36 CFR 1236.

The vital records program ensures the protection and availability of information critical to effective emergency response management and the protection of the legal rights and interests of citizens, the Federal government, and its employees, and DOE contractors and site personnel. The RL Office of Site Services is responsible to ensure that a vital records program for the Hanford Site is in place.

RL/ORP and site contractors shall annually review their respective records indicated on the vital records submittal listing and determine necessary additions to or deletions from the list. RL SES should ensure that the retrieval process for vital records is evaluated annually as part of a Hanford sitewide emergency exercise.

Program Administration

Each site contractor and RL/ORP shall provide designated storage locations for vital records as appropriate. RL/ORP and site contractor documents identified as vital records such as this plan, emergency procedures, and building emergency plans shall be stored at the DOE Hanford EOC in paper form so they can be used without reliance on mechanical equipment. Other emergency operating records and rights and interests records designated as vital need not be kept at the DOE Hanford EOC.

14 3 6 Emergency Records

RL/ORP and site contractor emergency procedures shall provide for documentation of emergency records that contain information for review and reconstruction of major communications and actions taken during a declared emergency. These records include logs and documentation produced by the respective emergency response organizations (i.e., Incident Command Organization and the DOE Hanford EOC). RL SES shall maintain emergency records generated during the operation of the DOE Hanford EOC and may also request copies of emergency records generated at other emergency response locations.

In addition, provisions shall be in place for the control, monitoring, and maintenance of permanent records of onsite personnel exposures to internal/external radiological and nonradiological hazardous materials in response to emergency conditions. Exposure records shall be stored in accordance with existing site records retention requirements.

14 3 7 Plan Locations

Copies of this plan are maintained at

RL and ORP Emergency Preparedness program offices

each contractor Emergency Preparedness office and other locations as specified by the respective contractor

Hanford Fire Department (area fire stations)

Occurrence Notification Center

DOE Hanford Emergency Operations Center (primary and alternate) and
the Patrol Operations Center

Copies of the plan are also maintained at the following offsite agencies (per their request) to meet the WAC 173 303 350(4) requirement:

Pasco Police Department

Program Administration

Adams County Sheriff's Office
Pasco Fire Department
College Place Fire Department
Kadlec Medical Center
Our Lady of Lourdes Health Center
Kennewick General Hospital
Benton County Emergency Management Center
Franklin County Emergency Management Center and
Grant County Emergency Management Center

Copies of location specific documentation are provided to offsite agencies as requested
Per agreement with Ecology location specific documentation is offered to offsite agencies every
two years

Documentation Crosswalk Matrix

APPENDIX A

DOCUMENTATION CROSSWALK MATRIX

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 340 Introduction	Preparedness and prevention Facilities must be designed constructed maintained and operated to minimize the possibility of fire explosion or any unplanned sudden or sudden release of dangerous waste or dangerous waste constituents to air soil or surface or ground water which could threaten the public health or the environment This section describes preparations and preventive measures which help avoid or mitigate such situations	Under the Dangerous Waste Regulations (State authorized RCRA program) the Hanford Site is a singular facility with over 60 TSD units and many more locations where generator activities take place For the purposes of these regulations Facility = Hanford Site	N/A
WAC 173 303 340(1) (Permit requirement)	Required equipment Required equipment All facilities must be equipped with the following unless it can be demonstrated to the department that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below (a) An internal communications or alarm system capable of providing immediate emergency instruction to facility personnel (b) A device such as a telephone or a hand held two way radio capable of summoning emergency assistance from local police departments fire departments or state or local emergency response teams (c) Portable fire extinguishers fire control equipment (including special extinguishing equipment such as that using foam inert gas or dry chemicals) spill control equipment and decontamination equipment and (d) Water at adequate volume and pressure to supply water hose streams foam producing equipment automatic sprinklers or water spray systems All facility communications or alarm systems fire protection equipment spill control equipment and decontamination equipment where required must be tested and maintained as necessary to assure its proper operation in time of emergency	Required equipment is evaluated on a site wide basis (Hanford Fire Department) and a location specific basis for TSD units and 90-day accumulation areas Each location does not necessarily require each type of equipment Lists of appropriate equipment are documented in accordance with WAC 173 303 350(3)(e)	See line item for WAC 173 303 350(3)(e)
WAC 173 303 340(2) (Permit requirement)	Access to communications alarms Personnel must have immediate access to the signaling devices described in the situations below (a) Whenever dangerous waste is being poured mixed spread or otherwise handled all personnel involved must have immediate access to an internal alarm or emergency communication device either directly or through a signal or voice contact with another employee unless such a device is not required in subsection (1) of this section (b) If there is ever just one employee on the premises while the facility is operating he must have immediate access to a device such as a telephone or a hand held two way radio capable of summoning external emergency assistance unless such a device is not required in subsection (1) of this section	Site personnel are provided access to signaling devices	None required to document compliance
WAC 173 303 340(3) (Permit requirement)	Aisle space The owner or operator must maintain aisle space to allow the unobstructed movement of personnel fire protection equipment spill control equipment and decontamination equipment to any area of facility operation in an emergency unless it can be demonstrated to the department that aisle space is not needed for any of these purposes	This requirement is met at TSD units and 90 day accumulation area where appropriate	N/A

Documentation Crosswalk Matrix

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 340(4) (Permit requirement)	Arrangements with local authorities The owner or operator must attempt to make the following arrangements as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations unless the hazards posed by wastes handled at the facility would offset the arrangements (a) Arrangements to familiarize police fire departments and emergency response teams with the layout of the facility property of dangerous waste handled at the facility and associated hazards places where facility personnel would normally be working entrances to roads inside the facility and possible evacuation routes (b) Arrangements to familiarize local hospitals with the properties of dangerous waste handled at the facility and the types of injuries or illnesses which could result from fires explosions or releases at the facility (c) Agreements with state emergency response teams emergency response contractors and equipment suppliers and (d) Where more than one party might respond to an emergency agreements designating primary emergency authority and agreements with any others to provide support to the primary emergency authority	Arrangements are addressed on a site wide basis Memoranda of Understanding which RL enters into are described in DOE/RL 94 02 Table 3 1 Hanford Site emergency responders (Hanford Fire Department and Hanford Patrol) must be familiar with items 340(4)(a) The City of Richland Benton County Sheriff and Washington State Patrol will be familiar as necessary	See line item for WAC 173 303 350(3)(c)
WAC 173 303 340(5)	Where state or local authorities decline to enter into such agreements the owner or operator must document the refusal in the operating record	The operating record is the set of documents maintained to demonstrate compliance with WAC 173 303 and the Hanford Site RCRA Permit	None If authorities decline the documentation will be maintained in accordance with DOE/RL 91 28
WAC 173 303 350(1)	Purpose The purpose of this section and WAC 173 303 360 is to lessen the potential impact on the public health and the environment in the event of an emergency circumstance including a fire explosion or unplanned sudden or nonsudden release of dangerous waste or dangerous waste constituents to air soil surface water or ground water by a facility A contingency plan must be developed to lessen the potential impacts of such emergency circumstances and the plan must be implemented immediately in such emergency circumstances	DOE/RL 94-02 is the site wide plan meeting site wide contingency planning requirements Location specific/activity specific elements are contained in documentation for operating TSD units and 90-day accumulation areas	The contingency plan consists of portions of DOE/RL 94 02 and location specific/activity specific documentation
WAC 173 303 350(2)	Each owner or operator must have a contingency plan at his facility A contingency plan must be developed to lessen the potential impacts of such emergency circumstances and the plan must be implemented immediately in such emergency circumstances	Facility = Hanford Site according to the regulations (See section 1 4 1 of this plan for definition)	The contingency plan consists of portions of DOE/RL 94 02 and location specific/activity specific documentation
WAC 173 303 350(3)(a) (Permit requirement)	The contingency plan must contain the following (a) A description of the actions which facility personnel must take to comply with this section and WAC 173 303 360	The site level description of actions is addressed in this plan Location specific/activity specific documentation utilizes generic response descriptions or creates more detailed descriptions appropriate for the location	Site level DOE/RL 94 02 section 1 3 4 Unit level location specific documentation
WAC 173 303 350(3)(b) (Permit requirement)	The contingency plan must contain the following (b) A description of the actions which will be taken in the event that a dangerous waste shipment which is damaged or otherwise presents a hazard to the public health and the environment arrives at the facility and is not acceptable to the owner or operator but cannot be transported pursuant to the requirements of WAC 173 303 370(5) Manifest system reasons for not accepting dangerous waste shipments	The site level description of actions is addressed in this plan For TSD units that receive offsite waste shipments location specific documentation addresses these circumstances	Site level DOE/RL-94-02 section 1 3 4 Unit level location specific documentation

Documentation Crosswalk Matrix

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 350(3)(c) (Permit requirement)	The contingency plan must contain the following (c) A description of the arrangements agreed to by local police departments fire departments hospitals contractors and state and local emergency response teams to coordinate emergency services as required in WAC 173 303 340(4)	DOE/RL 94-02 section 3.7 and Table 3.1 contain this information. This requirement is met at the site level. No location-specific information is needed to meet this requirement.	Site level DOE/RL 94-02 sections 3.2.3 3.3.1 3.3.2 3.4.3.4.1 3.4.1.2 3.4.1.3 3.7 and Table 3.1
WAC 173 303 350(3)(d) (Permit requirement)	The contingency plan must contain the following (d) A current list of names addresses and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173 303 360(1). Where more than one person is listed one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only this list may be provided to the department at the time of facility certification (as required by WAC 173 303 810(14)(a)(i)) rather than as part of the permit application.	DOE/RL 94-02 section 2.2 discusses personnel job titles which will fill duties and responsibilities of the Emergency Coordinator described in WAC 173 303 360. Location specific/activity specific documentation for TSD units and 90-day accumulation areas include information on job title work location and work phone number for Emergency Coordinator. Emergency Coordinator names and home phone numbers are maintained separate from the contingency plan document on file in accordance with Hanford Facility RCRA Permit, DW Portion General Condition II A.4 and is updated at a minimum on a monthly basis.	Site level None Unit level location specific documentation
WAC 173 303 350(3)(e) (Permit requirement)	The contingency plan must contain the following (e) A list of all emergency equipment at the facility (such as fire extinguishing systems spill control equipment communications and alarm systems and decontamination equipment) where this equipment is required. This list must be kept up to date. In addition the plan must include the location and a physical description of each item on the list and a brief outline of its capabilities.	DOE/RL 94-02 Appendix C contains the list of Hanford Fire Department equipment. Location specific documentation for TSD units and 90 day accumulation areas contain equipment lists for their respective locations.	Site level DOE/RL 94-02 Appendix C Unit level Appropriate equipment identified in location specific documentation
WAC 173 303 350(3)(f) (Permit requirement)	The contingency plan must contain the following (f) An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signals to be used to begin evacuation evacuation routes and alternate evacuation routes.	The site wide signals are delineated in DOE/RL 94-02 Table 5.1. No location signal information is required unless unique devices are used at the location. Site wide evacuation routes are contained in DOE/RL-94-02 Figure 7.3. Location specific evacuation routes will be provided in TSD units and 90 day accumulation area documentation. Evacuation routes for occupied buildings are provided through postings.	Site level DOE/RL 94-02 Figure 7.3 and Table 5.1 Unit level location specific documentation

Documentation Crosswalk Matrix

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 350(4) (Permit requirement)	Copies of contingency plan. A copy of the contingency plan and all revisions to the plan shall be: (a) Maintained at the facility and (b) Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.	Copies of DOE/RL 94-02 are maintained throughout the Hanford Site and with offsite agencies. Copies of location specific documentation are provided to offsite agencies as requested. Per agreement with Ecology, location specific documentation is offered to offsite agencies every two years.	Site level DOE/RL 94-02 section 14.3.7
WAC 173 303 350(5) (Permit requirement)	Amendments. The owner or operator shall review and immediately amend the contingency plan if necessary whenever: (a) Applicable regulations or the facility permit are revised; (b) The plan fails in an emergency; (c) The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of dangerous waste or dangerous waste constituents; or in a way that changes the response necessary in an emergency; (d) The list of emergency coordinators changes; or (e) The list of emergency equipment changes.	DOE/RL 94-02 and location specific documentation is revised according to these criteria. Making changes to these documents must also be accomplished in accordance with WAC 173 303 830 when applicable.	Site level DOE/RL 94-02 section 14.3.1.1
WAC 173 303 355(1) (Permit requirement)	Owners or operators must coordinate preparedness and prevention planning and contingency planning efforts conducted under WAC 173 333 340 and 350 with local emergency planning committees established pursuant to Title III of the 1986 Superfund Amendments and Reauthorization Act.	RL coordinates planning actions with three LEPCs: Benton County, Franklin County, and Grant County.	Site level DOE/RL 94-02 sections 3.1.3.1.1 and 3.4
WAC 173 303 355(2)	Appropriate and generally accepted computer models should be utilized to determine the impacts of a potential catastrophic air release due to fire, explosion, or other accidental releases of hazardous constituents. Evacuation plans prepared pursuant to WAC 173 303 350(3)(d) must include those affected persons and areas identified through these modeling efforts.	The DOE Hanford EOC contains modeling equipment to predict impacts of air releases.	Site level DOE/RL 94-02 sections 2.2.2.3.3 and 1.3.3.2
WAC 173 303 360(1) (Permit requirement)	Emergency coordinator. At all times, there must be at least one employee either on the facility premises or on call with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan required by WAC 173 303 350(2), all operations and activities at the facility, the location and properties of all wastes handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.	Duty met by the Hanford Incident Command Structure and staff with supporting on-call personnel.	Site level DOE/RL 94-02 section 1.3.4 and 2.2
WAC 173 303 360(2)(a) (Permit requirement)	Emergency procedures. The following procedures must be implemented in the event of an emergency: (a) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately: (i) Activate internal facility alarms or communication systems where applicable to notify all facility personnel; and (ii) Notify appropriate state or local agencies with designated response roles if their help is needed.	Alarm activation can be accomplished by the discoverer of the event (fire/911) or the Hanford Incident Command System and staff with supporting on-call personnel. Notification made to non-Hanford agencies with designated response roles is accomplished via 911 telephones to request assistance (fire, ambulance, law enforcement).	Site level DOE/RL 94-02 sections 1.3.4 and 5.2.1

Documentation Crosswalk Matrix

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 360(2)(b) (Permit requirement)	Emergency procedures (b) Whenever there is a release fire or explosion the emergency coordinator must immediately identify the character exact source amount and areal extent of any elements and materials	Hanford Incident Command System and staff with supporting on call personnel	Site level DOE/RL 94 02 sections 2 2 1 1 2(f) and 2 2 1 1 3(g)
WAC 173 303 360(2)(c) (Permit requirement)	Emergency procedures (c) Concurrently the emergency coordinator shall assess possible hazards to human health and the environment (considering direct indirect immediate and long term effects) that may result from the release fire or explosion	Hanford Incident Command System and staff with supporting on-call personnel	Site level DOE/RL 94 02 section 4 2
WAC 173 303 360(2)(d) (Permit requirement)	Emergency procedures (d) If the emergency coordinator determines that the facility has had a release fire or explosion which could threaten human health or the environment he must report his findings as follows (i) If his assessment indicates that evacuation of local areas may be advisable he must immediately notify appropriate local authorities He must be available to help appropriate officials decide whether local areas should be evacuated and () He must immediately notify the department and the government official designated as the on scene coordinator or the National Response Center (using their 24 hour toll free number (800) 424 8802)	Hanford Incident Command System and staff with supporting on-call personnel ONC personnel notify local authorities if evacuation is advisable on behalf of the Hanford Incident Command Structure Site contractor environmental single point-of contact personnel perform the assessment report notification to Ecology and RL (the on scene coordinator on behalf of the Hanford Incident Command Structure NRC is not called)	Site level DOE/RL 94 02 sections 2 2 1 1 2(a) &(d) 2 2 1 1 3(a)&(e) 5 1 1 5 1 1 2 5 1 2 and 5 1 2 1
WAC 173 303 360(2)(e) (Permit requirement)	Emergency procedures (e) His assessment report must include (i) Name and telephone number of reporter (ii) Name and address of facility (iii) Time and type of incident (e.g. release fire) (iv) Name and quantity of material(s) involved to the extent known () The extent of injuries if any and (vi) The possible hazards to human health or the environment outside the facility	Site contractor environmental single point-of-contact personnel perform the assessment report notification to Ecology and RL after obtaining it from location specific personnel	Site level DOE/RL 94 02 sections 2 2 1 1 2(d) 2 2 1 1 3(e) 5 1 1 5 1 1 2 and 5 1 2 1
WAC 173 303 360(2)(f) (Permit requirement)	Emergency procedures (f) During an emergency the emergency coordinator must take all reasonable measures necessary to ensure that fires explosions and releases do not occur or spread to other dangerous waste at the facility These measures must include where applicable stopping processes and operations collecting and containing released waste and removing or isolating containers	Hanford Incident Command System and staff with supporting on call personnel	Site level DOE/RL 94 02 sections 2 2 1 1 2(f) and 2 2 1 1 3(g)
WAC 173 303 360(2)(g) (Permit requirement)	Emergency procedures (g) If the facility stops operations in response to a fire explosion or release the emergency coordinator must monitor for leaks pressure buildup gas leaks or ruptures in valves pipes or other equipment where appropriate	Hanford Incident Command System and staff with supporting on-call personnel	Site level DOE/RL 94 02 sections 2 2 1 1 2(f) and 2 2 1 1 3(g)
WAC 173 303 360(2)(h) (Permit requirement)	Emergency procedures (h) Immediately after an emergency the emergency coordinator must provide for treating storing or disposing of recovered waste contaminated soils surface water or any other material that results from a release fire or explosion at the facility	Onsite Recovery Director with supporting on call personnel	Site level DOE/RL 94 02 section 9 2 3

Documentation Crosswalk Matrix

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW DOES REQUIREMENT APPLY TO HANFORD?	WHERE IS REQUIREMENT MET IN DOCUMENTATION?
WAC 173 303 360(2)(i) (Permit requirement)	Emergency procedures (i) The emergency coordinator must ensure that in the affected area(s) of the facility (i) No waste that may be incompatible with the released material is treated stored or disposed of until cleanup procedures are completed and (ii) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed	Onsite Recovery Director with supporting on call personnel	Site level (i) DOE/RL 94-02 section 9 2 3 Site level (ii) DOE/RL 94-02 section 11 2
WAC 173 303 360(2)(j) (Permit requirement)	Emergency procedures (j) The owner or operator must notify the department and appropriate local authorities that the facility is in compliance with (i) of this subsection before operations are resumed in the affected area(s) of the facility	Site contractor environmental single point-of-contact personnel perform this notification when applicable on behalf of the Onsite Recovery Director	Site level DOE/RL 94 02 section 5 1 2 3
WAC 173 303 360(2)(k) (Permit requirement)	Emergency procedures (k) The owner or operator must note in the operating record the time date and details of any incident that requires implementing the contingency plan Within fifteen days after the incident, he must submit a written report on the incident to the department The report must include (i) Name address and telephone number of the owner or operator (ii) Name address and telephone number of the facility (iii) Date time and type of incident (e.g. fire explosion) (iv) Name and quantity of material(s) involved (v) The extent of injuries if any (vi) An assessment of actual or potential hazards to human health or the environment where this is applicable (vii) Estimated quantity and disposition of recovered material that resulted from the incident (viii) Cause of incident and (ix) Description of corrective action taken to prevent reoccurrence of the incident	Site contractor management through RL ensures the note in the operating record is performed and prepares the 15-day report to Ecology	Site level DOE/RL 94 02 section 5 1 2 2
40 CFR 761 65(c)(1)(i) and (c)(7)(ii) SPCC Plans for PCBs	Temporary Storage Areas (less than 30-days) (c)(1)(i) PCB containers containing liquid PCBs at concentrations of ≥ 50 ppm, provided a Spill Prevention Control and Countermeasure Plan has been prepared for the temporary storage area in accordance with part 112 of this chapter and the liquid PCB waste is in packaging authorized in the DOT Hazardous Materials Regulations at 49 CFR parts 171 through 180 or stationary bulk storage tanks (including rolling stock such as but not limited to tanker trucks as specified by DOT) (c)(7)(ii) The owner or operators of any facility using containers described in paragraph (c)(7)(i) of this section shall prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan as described in Part 112 of this title In complying with 40 CFR Part 112 the owner or operator shall read oil(s) as PCB(s) whenever it appears The exemptions for storage capacity 40 CFR 112 1(d)(2) and the amendment of SPCC plans by the Regional Administrator 40 CFR 112 4 shall not apply unless some fraction of the liquids stored in the container are oils as defined by section 311 of the Clean Water Act	When SPCC plans apply to Hanford Site activities the information not covered in site wide documentation must be addressed in location specific documentation	Site level DOE/RL 94 02 sections 1 1 (fourth paragraph) 1 2 (first bullet sixth dash and second bullet fourth dash) and 2 2 1 1 2 (first paragraph) Unit level appropriate location specific documentation

**Hanford Facility RCRA Permit Modification Notification Forms
Part III, Chapter 2 and Attachment 18
305 B Storage Facility**

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Hanford Facility RCRA Permit Modification Notification Form

Unit: 305-B Storage Facility	Permit Part & Chapter: Part III, Chapter 2 and Attachment 18
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Description of Modification:

Hanford Facility RCRA Permit, Condition III.2.A:

III.2.A. COMPLIANCE WITH APPROVED PERMIT APPLICATION

The Permittees shall comply with all the requirements set forth in Attachment 18, including all Class 1 Modifications specified below, and the Amendments specified in Condition III.2.B. Enforceable portions of the application are listed below; all subsections, figures, and tables included in these portions are also enforceable, unless stated otherwise:

Section 1.0	Part A, Form 3, Permit Application, from Class 1 Modification for quarter ending December 31, 2001
Section 2.1.2	The 305-B Storage Unit, from Class 1 Modification for quarter ending March 31, 2001
Section 2.2.1	General Requirement from Class 1 Modification for quarter ending March 31, 2001
Section 2.5	Performance Standard, from Class 1 Modification for quarter ending March 31, 2001
Section 2.6	Buffer Monitoring Zones, from Class 1 Modification for quarter ending March 31, 2001
Section 2.8	Manifest System, from Class 1 Modification for quarter ending March 31, 2001
Chapter 3.0	Waste Characteristics, from Class 1 Modification for quarter ending March 31, 2002 December 31, 2001
Chapter 4.0	Process Information, from Class 1 Modification for quarter ending December 31, 2000 March 31, 2002
Chapter 6.0	Procedures to Prevent Hazards, from Class 1 Modification for quarter ending March 31, 2001 March 31, 2002
Chapter 7.0	Building Emergency Procedure, from Class 1 Modification for quarter ending June 30, 2001
Chapter 8.0	Personnel Training, from Class 1 Modification for quarter ending September 30, 2001
Chapter 11.0	Closure and Post-Closure Requirements, from Class 1 Modification for quarter ending September 30, 2000
Chapter 12.0	Reporting and Recordkeeping, from Class 1 Modification for quarter ending June 30, 1999
Section 13.8	Toxic Substances Control Act, from Class 1 Modification for quarter ending September 30, 2000
Section 13.9	Other Requirements, from Class 1 Modification for quarter ending September 30, 2000
Appendix 2A	Hanford Site and 300-Area Topographic Maps, Plates 2-2 Through 2-9, from Class 1 Modification for quarter ending June 30, 2001

Modification Class: ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes:	X			

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>A.K. Ikenberry</i> 3-15-02	<i>R.F. Christensen</i> 4/1/02		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

¹ Class 1 modifications requiring prior Agency approval.² This is only an advanced notification of an intended Class ¹1, 2, or 3 modification, this should be followed with a formal modification request, and consequently implement the required Public Involvement processes when required.³ If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to ¹1, if appropriate.

Hanford Facility RCRA Permit Modification Notification Form

Unit:
305-B Storage Facility

Permit Part & Chapter:
Part III, Chapter 2 and Attachment 18

Description of Modification:

Chapter 3.0, Table 3-1:

Table 3-1. Summary of Test Parameters, Rationales, and Methods

Parameter ^a	Method ^b	Rationale for Selection
Physical Screening		
Visual inspection	Field method - observe phases, presence of solids in waste	Ensure that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics	Water mix screen <u>ASTM Method D5232-92</u>	Ensure that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Water reactivity	Water mix screen <u>ASTM Method D5232-92</u>	Ensure that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
pH	pH screen <u>SW-846 Method 9041</u>	Ensure that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Cyanides	Cyanide screen <u>HAZCAT™</u>	Ensure that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Sulfides	Sulfide screen <u>HAZCAT™</u>	Ensure that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Pre-Shipment Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds)	Identify waste not identified on the Part A, Form 3
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified on the Part A, Form 3 (for waste with >1% solids and for which WP03 could apply)

^a Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.

^b Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed. ~~For other cases, method will be reliable.~~

Modification Class: ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes:	X			

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>A.K. Ikenberry</i> for 3-15-02	<i>R.F. Christensen</i> 4/1/02		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

¹ Class 1 modifications requiring prior Agency approval.

² This is only an advanced notification of an intended Class ¹1, 2, or 3 modification, this should be followed with a formal modification request, and consequently implement the required Public Involvement processes when required.

³ If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to ¹1, if appropriate.

Hanford Facility RCRA Permit Modification Notification Form

Unit:
305-B Storage Facility

Permit Part & Chapter:
Part III, Chapter 2 and Attachment 18

Description of Modification:

Chapter 4.0, Section 4.1.1.2:

4.1.1.2 Container Management Practices [D-1a(2)]

Management practices and procedures for containers of dangerous waste are in place at the 305-B Storage Facility to assure the safe receipt, handling, preparation for transport, and transportation of waste. These practices and procedures are summarized below.

Inspection of Containers. A system of daily, weekly, monthly, and yearly inspections is in place to ensure container integrity, check for proper storage location, prevent capacity overrun, etc. These inspection procedures are detailed in Section 6.2.

Container Handling. All unit staff is instructed in proper container handling safeguards as part of their training (refer to Section 8.1.2 for further details). For example, employees are instructed to open all high-vapor-pressure liquids in the flammable liquid bulking module to avoid buildup of vapors in the unit. Containers are always kept closed except when adding or removing waste, in accordance with WAC 173-303-630(5)(a).

Containers are not opened, handled or stored in a manner that would cause the container to leak or rupture. Small containers (five gallons or less capacity) are stored on ~~ventilated~~ shelving or in approved flammable liquid storage lockers (if appropriate). Containers over five gallons capacity are stored on the floor of the appropriate storage cell, in cabinets, or stored in the appropriate containment area on the high bay floor under Section 4.3.2. Unnecessary handling not required for redistribution or preparation for transport and disposal by either labpacking or bulking is minimized. Crane or chain hoist, or forklift moves drums manually. For manual movement, hand trucks specifically designed for drum handling are used. Crane and chain hoist operations are performed following the appropriate Hoisting and Rigging procedures: using a choker chain or drum hoist. When using the forklift, a drum hoist is used or the drums are carried on pallets. Drums are never carried on the forks or "speared" by slipping the forks under the chime. When waste handling operations are conducted, a minimum of two persons is present in the unit.

Modification Class: ¹²³

Please check one of the Classes:

Class 1

Class¹1

Class 2

Class 3

X

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>A.K. Ikenberry</i> 3-15-02	<i>R.F. Christensen</i> 4/1/02		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

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Hanford Facility RCRA Permit Modification Notification Form

Unit:
305-B Storage Facility

Permit Part & Chapter:
Part III, Chapter 2 and Attachment 18

Description of Modification:

Chapter 4.0, Section 4.1.1.6.4:

4.1.1.6.4 Flammable Cell. The flammable-cell (cell 4) is located south of the alkaline, Washington State Criteria waste, and non-regulated waste cell. As with the other three cells described above, this cell is constructed of epoxy-painted concrete block walls 4 feet high and incorporates a 1 foot deep sump along its west end. The secondary containment volume of the individual sump for this cell is 119 gallons, and total containment volume of the cell is 687 gallons. A diagram of this cell is provided in Figure 4-4.

Ignitable organic waste materials are stored in this cell that also exhibits the characteristics of corrosivity, toxicity as well as reactivity. Three Factory Mutual-approved flammable liquid storage cabinets are utilized for storage of various classes of flammable liquids as defined by the UFC. The capacities of the various cabinets are shown in Table 4-2. The following cabinets also are used for storage in this cell: one for combustibles, one for aerosols, two for flammable solids, and one for overflow from one of the other cabinets.

Total ignitable Waste Storage capacity of the 305-B Storage Facility highbay, including the organics cell, Cell 5, Ignitable drum storage area, and highbay storage area is limited by the following UBC restrictions for Class B occupancy:

- Class 1A flammable liquids: 120 gallons
- Class 1B flammable liquids: 240 gallons
- Class 1C flammable liquids: 360 gallons
- Maximum Class 1A, 1B, and 1C at any one time: 480 gallons
- Maximum Class 1A, 1B and 1C stored in Cell 8 self contained storage module for flammable liquids is 240 gallons
- Class 2 combustible liquids: 480 gallons
- Class 3A combustible liquids: 1320 gallons
- Combustible fibers, loose: 100 cubic feet
- Combustible fibers, baled: 1000 cubic feet
- Flammable gases in any one cylinder: 3000 cubic feet
- Liquefied flammable gases: 60 gallons

To maintain required aisle spaces and functional usability, the liquid capacity of the organics cell (cell 4) is set at 1000 gallons.

Modification Class: ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes:	X			

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

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Hanford Facility RCRA Permit Modification Notification Form

Unit: 305-B Storage Facility	Permit Part & Chapter: Part III, Chapter 2 and Attachment 18								
<u>Description of Modification:</u> Chapter 4.0, Section 4.1.1.6.5.a: <p>4.1.1.6.5.a. Flammable Liquids Storage Module. The flammable liquid storage module is a self-contained storage module (cell 8) that allows additional storage space for flammable waste. The flammable liquid storage module is located along the south on the southeast wall, it and is connected to the buildings fire suppression system. The flammable liquid storage module has a 2-hour fire rated containment system so that according to the UFC, an unlimited capacity is allowed. However, the flammable waste storage capacity of the flammable liquid storage module is limited by the 240-gallon capacity of the module's secondary containment system. No more than 240 gallons of any combination of flammable liquid classes will be stored in the module. This flammable waste storage capacity is in addition to the flammable storage limits for the highbay. A diagram showing the module location in the highbay is provided in Figure 4-7.</p>									
Modification Class: ¹²³ Please check one of the Classes:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Class 1</td> <td style="width: 25%;">Class¹1</td> <td style="width: 25%;">Class 2</td> <td style="width: 25%;">Class 3</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> </table>	Class 1	Class ¹ 1	Class 2	Class 3	X			
Class 1	Class ¹ 1	Class 2	Class 3						
X									
Relevant WAC 173-303-830, Appendix I Modification: A.1.									
<u>Enter wording of the modification from WAC 173-303-830, Appendix I citation</u> A. General Permit Provisions 1. Administrative and Informational changes									
Submitted by Co-Operator: <i>A. K. Ikenberry</i> for <i>3-15-02</i> A.K. Ikenberry Date	Reviewed by RL Program Office: <i>R.F. Christensen</i> <i>4/1/02</i> R.F. Christensen Date								
Reviewed by Ecology: F. Jamison Date	Reviewed by Ecology: L.E. Ruud Date								

¹ Class 1 modifications requiring prior Agency approval.

² This is only an advanced notification of an intended Class ¹1, 2, or 3 modification, this should be followed with a formal modification request, and consequently implement the required Public Involvement processes when required.

³ If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to ¹1, if appropriate.

Hanford Facility RCRA Permit Modification Notification Form

Unit: 305-B Storage Facility	Permit Part & Chapter: Part III, Chapter 2 and Attachment 18
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Description of Modification:

Chapter 4.0, Section 4.1.1.6.7:

4.1.1.6.7 Oxidizer Waste Drum Universal and Recycling Waste Storage Area. A second section of the high bay (cell 12) has been dedicated to storage of drum quantities of oxidizer universal and recycling waste before offsite shipment. The area is 10ft x 7ft in size. All material in this area is stored in DOT approved containers and Waste drums stored in this area is stored on pallets to prevent contact with spilled waste in the event of an incident.

Sump containment capacity in this area is approximately 55 gallons and total containment capacity is approximately 255 gallons. Maximum storage in this area will be eight 55-gallon drums. A diagram of this area is included in Figure 4-6.

Modification Class: ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes:	X			

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>ACorrell</i> for 3-15-02	<i>RF Christensen</i> 4/1/02		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

¹ Class 1 modifications requiring prior Agency approval.² This is only an advanced notification of an intended Class ¹1, 2, or 3 modification, this should be followed with a formal modification request, and consequently implement the required Public Involvement processes when required.³ If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to ¹1, if appropriate.

Hanford Facility RCRA Permit Modification Notification Form

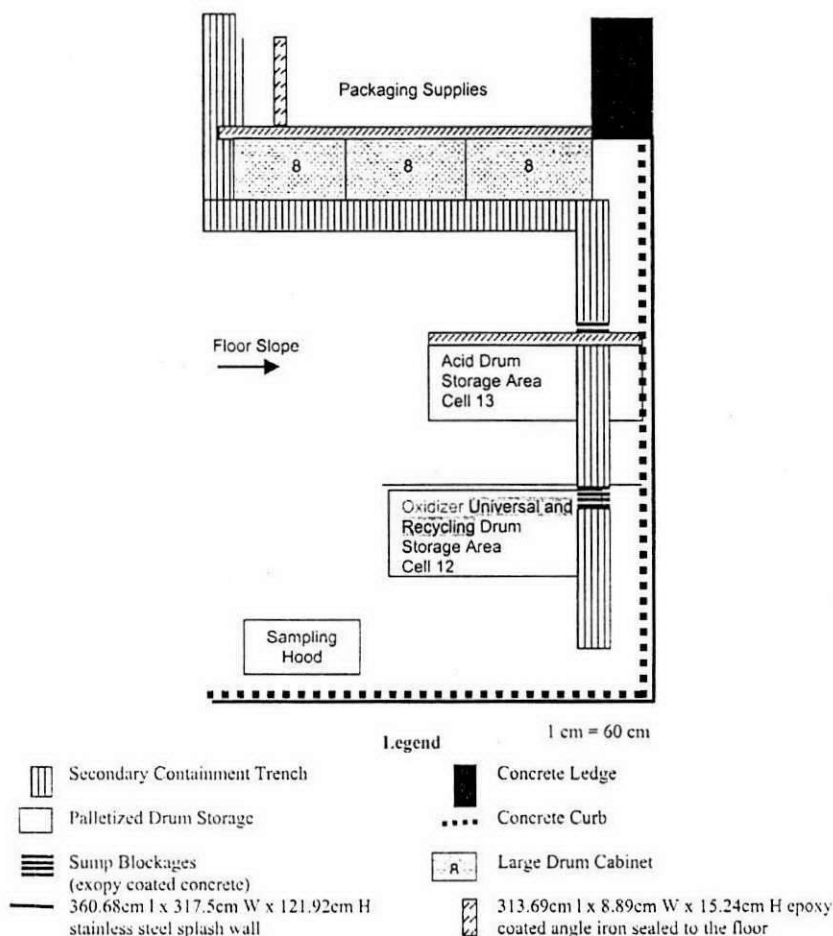
Unit:
305-B Storage Facility

Permit Part & Chapter:
Part III, Chapter 2 and Attachment 18

Description of Modification:

Chapter 4.0, Figure 4-6:

Figure 4-6. Segregated High Bay Drum Storage Areas


Modification Class: ¹²³

Please check one of the Classes:

Class 1

Class¹

Class 2

Class 3

X

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>A.K. Ikenberry</i> 3-15-02	<i>R.F. Christensen</i> 4/1/02		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

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Hanford Facility RCRA Permit Modification Notification Form

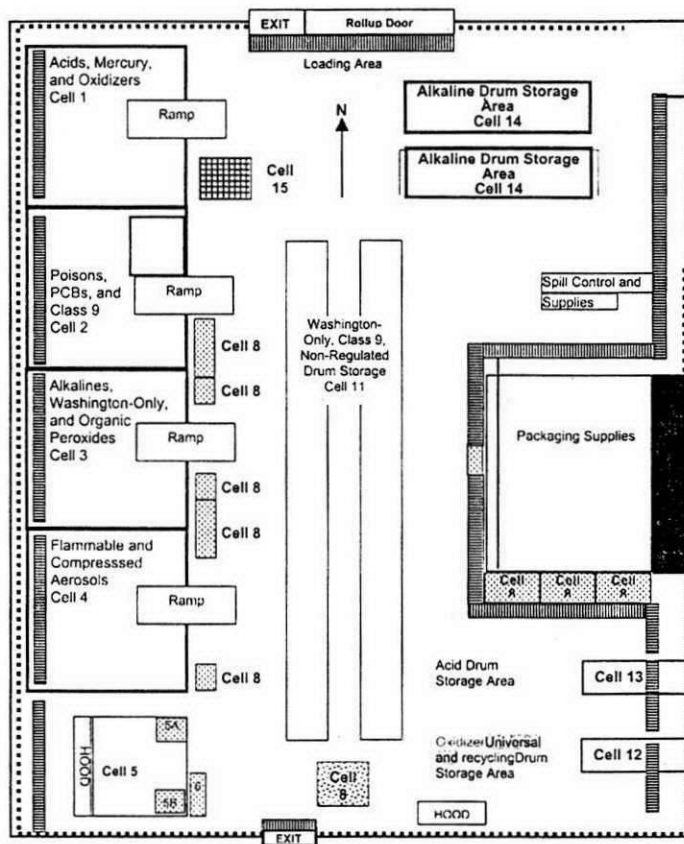
Unit:
305-B Storage Facility

Permit Part & Chapter:
Part III, Chapter 2 and Attachment 18

Description of Modification:

Chapter 4.0, Figure 4-7:

Figure 4-7. High Bay Storage Area
(Page 1 of 2)



Legend: On next page

Scale: 1cm = 120 cm

Modification Class: ¹²³

Please check one of the Classes:

Class 1	Class ¹	Class 2	Class 3
X			

Relevant WAC 173-303-830, Appendix I Modification: A.1.

Enter wording of the modification from WAC 173-303-830, Appendix I citation

A. General Permit Provisions

1. Administrative and Informational changes

Submitted by Co-Operator:	Reviewed by RL Program Office:	Reviewed by Ecology:	Reviewed by Ecology:
<i>A.K. Ikenberry</i> for <i>3-15-02</i>	<i>R.F. Christensen</i> <i>4/1/02</i>		
A.K. Ikenberry Date	R.F. Christensen Date	F. Jamison Date	L.E. Ruud Date

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Hanford Facility RCRA Permit Modification Notification Form

Unit
305-B Storage Facility

Permit Part & Chapter
Part III Chapter 2 and Attachment 18

Description of Modification

Chapter 6 0 Section 6 2 1 1

Quarterly Once Every Four Months and Annual Inspections In addition to the several layers of management inspection of 305 B Storage Facility safety inspections are performed to assure the fire protection system eye wash/shower unit, and walk in hood ventilation systems are in working order The Hanford 300 Area Fire Department performs once every four months a inspection of fire suppressant and notification systems (i e sprinkler system and pull boxes) This inspection includes flow tests of the sprinklers to assure no blockage in the system lines as well as activation of the alarm system to assure proper operation of pull boxes On an annual basis the Fire Department performs a full inspection of the sprinkler system heat detectors and pull boxes A complete flow test is performed from the furthest valve to assure flow through

the entire system Fire extinguishers are also checked for proper pressure and function Records of these fire inspections and the Hanford Fire Department keeps their results Documentation of any required corrective actions is kept in the 305 B Storage Facility Operating Record

PNNL facilities support staff perform additional documented inspections of the two emergency eye wash/shower units and the walk in hood airflow The safety showers and airflow of the walk in hood are inspected quarterly The emergency eyewash/safety showers are checked for proper operation and the walk in hood ventilation face velocity must meet a ~~125 fpm~~ minimum requirements¹ Records of these safety equipment inspections and their results as well as documentation of any required corrective actions are maintained by the preventive maintenance staff in PNNL s Facilities Management Department and Technical Services Department

Modification Class ^{1 2 3}

Please check one of the Classes

Class 1

Class¹1

Class 2

Class 3

X

Relevant WAC 173 303 830 Appendix I Modification A 1

Enter wording of the modification from WAC 173 303 830, Appendix I citation

A General Permit Provisions

1 Administrative and Informational changes

Submitted by Co Operator	Reviewed by RL Program Office	Reviewed by Ecology	Reviewed by Ecology
<i>A K Ikenberry</i> for 3-15-02	<i>R F Christensen</i> 4/1/02		
A K Ikenberry Date	R F Christensen Date	F Jamison Date	L E Ruud Date

¹ Class 1 modifications requiring prior Agency approval

² This is only an advanced notification of an intended Class ¹ 2 or 3 modification this should be followed with a formal modification request and consequently implement the required Public Involvement processes when required

³ If the proposed modification does not match any modification listed in WAC 173 303 830 Appendix I then the proposed modification should automatically be given a Class 3 status This status may be maintained by the Department of Ecology or down graded to ¹ 1 if appropriate

**Hanford Facility RCRA Permit Modification
Part III, Chapter 2 and Attachment 18
305 B Storage Facility**

Replacement Sections

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Chapter 3 0

Chapter 4 0

Chapter 6 0

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3 0 WASTE ANALYSIS [C]

The purpose of this Waste Analysis Plan (WAP) is to document the waste acceptance process sampling methodologies analytical techniques and processes that are undertaken for sampling and analysis of dangerous and or mixed waste managed in the 305 B Storage Facility

This chapter also provides information on the chemical biological and physical characteristics of the waste stored at the 305 B Storage Facility

3 1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C 1]

The dangerous waste and RMW stored at 305 B Storage Facility can be categorized as originating from five basic sources

Listed Waste from specific and nonspecific sources

Discarded commercial chemical products

Waste from research activities using radioactive isotopes

Waste from chemicals synthesized or created in research laboratories

Discarded commercial products exhibiting dangerous waste characteristics and/or criteria

Each of these waste categories is discussed below including waste descriptions hazard characteristics and bases for hazard designations This information includes that which must be known to treat store or dispose of the waste as required under WAC 173 303 806(4)(a)(ii)

Listed Waste from Specific and Nonspecific Sources Waste from specific and nonspecific sources consist of those listed waste identified in WAC 173 303 9904 The Part A Form 3 for 305 B Storage Facility identifies the waste from this category with their estimated annual management quantities

Halogenated and nonhalogenated solvents are in the form of spent solvents Degreasing solvents (F001) as well as spent halogenated solvents (F002) are used primarily in research although some commercial applications do exist (e g printing duplicating) Spent non halogenated solvents (F003 F004 and F005) also come primarily from research laboratories although some is generated through maintenance applications Manufacturing activities are not performed at Hanford therefore dangerous waste from specific sources (WAC 173 303 9904 K Waste) typically are not generated at PNNL However small quantities of K listed waste have been generated from treatability studies and sample characterization activities at PNNL from time to time and could be stored at 305 B Storage Facility W001 state source waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be stored at 305 B Storage Facility if other generation activities occur

F listed waste is designated on the basis of process knowledge (i e information from container labels or material safety data sheets) or by sampling Sampling is performed if the generating unit does not have sufficient information to document the composition and characteristics of the waste The waste generator is responsible for specifying the characteristics of the waste on the basis of knowledge of the chemical products used (i e information supplied by the manufacturer) and the process generating the waste These listed waste are all designated as dangerous waste (DW) or extremely hazardous waste (EHW) based on the criteria given in WAC 173 303 100 Waste F027 is designated as an LDR waste under 40 CFR 268 31 (dioxin containing waste)

Waste code W001 is assigned to wastes meeting the criteria given in WAC 173 303 9904 and not exempted by WAC 173 303 071(3)(k)

Discarded Chemical Products Discarded chemical products consist of those products described in WAC 173 303 081 The Part A Form 3 for 305 B Storage Facility identifies all of the discarded chemical products listed in WAC 173 303 9903 and specifies an estimated maximum annual management quantity based on prior experience The Part A permit application lists all of these waste codes however

because the wide variety of research activities conducted at Hanford presents the potential to generate any of these waste

These waste (P waste and U waste) are typically received at 305 B Storage Facility in the manufacturer's original container. These containers typically consist of glass and polyethylene jars or bottles and metal cans that have a volume equal to or less than 4 liters.

Waste in this category are designated on the basis of the generator's knowledge. As these waste are usually in original containers, information on the container label is verified by generator knowledge (i.e., knowledge that material is in its original container) and is used to identify contents. Waste in as procured containers (i.e., original container with intact label) are not sampled. These listed waste contain those designated as DW as well as those designated as EHW. These waste are also subject to LDR regulations under 40 CFR 268, including disposal prohibitions and treatment standards.

Waste from Research Activities Using Radioactive Isotopes Dangerous waste from research activities using radioactive isotopes are RMW. These waste are generated in laboratories performing chemical and physical research and consist primarily of radiologically contaminated chemicals. These waste are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generator has kept accurate records of the identities and concentrations of constituents present in the waste. For example, many generating units keep log sheets for accumulation containers in satellite areas to keep a record of waste constituents. If information available from the generator is inadequate for waste designation, the waste are sampled and the results of the analysis are used for designation. These waste include those designated as state only dangerous waste under WAC 173 303 100 and also those designated as characteristic dangerous waste under WAC 173 303 090. The Part A Permit Application for 305 B Storage Facility includes all categories of toxic and persistent waste (i.e., both DW and EHW). The wide variety of research activities conducted at Hanford presents the potential that these waste could be generated and require subsequent management at 305 B Storage Facility. Similarly, the Part A Form 3 permit application includes the characteristic dangerous waste categories D001 through D043 (i.e., ignitable, corrosive, reactive, and TCLP toxic due to metals or organics content).

Flammables (i.e., flash point less than 100 Fahrenheit) will not be stored in the below grade RMW cell; however, ignitables (D001 due to oxidizer content) will be stored in this cell. Flammable RMW is not stored below grade due to Fire Code restrictions. These waste are stored above the RMW cell in a flammable storage module. The flammable RMW module is equipped with secondary containment to provide greater than 100% secondary containment volume.

The waste in this category includes those designated as either DW or EHW. The waste could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173 303 140 (e.g., organic/carbonaceous waste).

Waste from Chemicals Synthesized or Created in Research Laboratories Waste from chemicals synthesized or created in research laboratories typically consist of organics in quantities of 100 g or less received in small containers.

These waste are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generating unit has kept accurate records of the identities and concentrations of constituents present in the waste (e.g., log sheets for accumulation containers). If information available from the generating unit is inadequate for waste designation, the waste are sampled and the results of the analysis are used for designation. These waste include those designated as state only dangerous waste under WAC 173 303 100 and also those designated as characteristic dangerous waste under WAC 173 303 090. The Part A Form 3 for 305 B Storage Facility includes all categories of toxic and persistent waste (i.e., both DW and EHW). The wide variety of research activities conducted at Hanford presents the potential that these wastes could be generated and require subsequent management at 305 B Storage Facility.

The wastes in this category includes those designated as either DW or EHW. These wastes could also be federal LDR wastes regulated under 40 CFR 268 as well as state LDR wastes regulated under WAC 173 303 140 (e.g. organic/carbonaceous wastes).

Discarded Chemical Products Exhibiting Dangerous Waste Characteristics and/or Criteria Many discarded chemical products handled in 305 B Storage Facility are not listed in WAC 173 303 9903 and are still considered dangerous waste since they exhibit at least one dangerous waste characteristic and/or criterion (WAC 173 303 090 and WAC 173 303 100). These wastes are included with those listed in the Part A Form 3 under waste codes D001 through D043, WT01, WT02, WP01, WP02, and WP03. These containers typically consist of glass and polyethylene jars or bottles and metal cans that have a maximum volume of 4 liters.

Waste in this category are designated based on the generator's knowledge. As these waste are usually in their original containers, information on the container label is verified by the generator's knowledge and is used to identify the contents. These waste contain those designated as DW as well as those designated as EHW. These waste could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173 303 140 (e.g. organic/carbonaceous waste).

3 1 1 Containerized Waste

The container storage areas at 305 B Storage Facility meet the containment system requirements of WAC 173 303 630(7)(c). Testing or documentation that the dangerous waste stored at 305 B Storage Facility does not contain free liquids is not required.

3 1 2 Waste in Tank Systems

This section does not apply to the 305 B Storage Facility because wastes are not stored in tanks.

3 1 3 Waste in Piles [C 1a]

This section does not apply to the 305 B Storage Facility because wastes are not stored in piles.

3 1 4 Landfill Waste [C 1b]

This section does not apply to the 305 B Storage Facility because wastes are not placed in landfills.

3 1 5 Waste Incinerated and Waste Used in Performance Tests [C 1c]

This section does not apply to the 305 B Storage Unit because wastes are not incinerated.

3 1 6 Waste to be Land Treated

This section does not apply to the 305 B Storage Facility because waste does not undergo land treatment.

3 2 WASTE ANALYSIS PLAN [C 2]

This section describes the procedures used to obtain the information necessary to manage waste in accordance with the requirements of WAC 173 303 (Ecology 2000).

3 2 1 Facility Description

The 305 B Storage Facility is a dangerous waste and RMW storage unit owned and operated by the Department of Energy and co-operated by Pacific Northwest National Laboratory. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of both dangerous waste and RMW. It is an integral part of the Hanford Site's waste management system.

The 305 B Storage Facility is a one-story frame and masonry building with basement constructed in the early 1950s, with an attached two-story high metal and concrete building constructed in January 1978 referred to in this document as the "high bay." The unit is located within the 300 Area and was formerly used for engineering research and development. Unit upgrades were completed in 1988 to meet

requirements for storage of dangerous waste and RMW Waste storage under interim status began in March 1989

3 2 2 Description of Facility Processes and Activities

A variety of small volume chemical wastes are generated by PNNL's research laboratory activities. These wastes are brought to the 305 B Storage Facility and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30-55 gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment, or disposal facilities.

Dangerous wastes are stored in the high bay. The high bay has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage cells have been constructed within the high bay area for segregated storage of incompatible waste streams. Each of the cells is approximately 14 x 14, enclosed by 4 high concrete block walls; each cell has its own separate secondary containment system. Drum quantity storage for incompatible wastes is allowed in these cells and in separated areas of the high bay.

Radioactive mixed waste (RMW) is stored in the basement of the original wing of the building in an area approximately 18 x 32. Flammable RMW cannot be stored below grade (per Uniform Fire Code) and is stored in an independent area on the first floor of the original wing in the RMW flammable storage module.

Most of the information necessary to manage waste at 305 B Storage Facility is obtained from generating units without the need to perform detailed chemical, physical, and biological analysis. This approach is used for the following reasons:

- Waste stored at 305 B Storage Facility are generated on the Hanford Site and/or by PNNL research programs; effective administrative control can be maintained over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit).

- Wastes stored at 305 B Storage Facility may be discarded chemical products for which knowledge of waste characteristics is available without further analysis.

- Many of the waste stored at 305 B Storage Facility result from research activities that are carefully controlled and documented; this documentation includes information on chemical constituents.

Information provided by waste generating units is verified before wastes are accepted for transport to 305 B Storage Facility (e.g., wastes are inspected to verify that they are as described in the disposal request). Generating units are not required to sample wastes unless they have inadequate process knowledge to designate waste; additional LDR information is needed, or visual verification failure occurs. Verification sampling of waste to be shipped offsite from 305 B Storage Facility is required by the disposal contractor, and the contractor performs these analyses.

Because of the importance of administrative controls for the purposes of waste analysis, procedures for management of wastes from the time of generation through storage at 305 B Storage Facility are described below. These procedures demonstrate how sufficient knowledge is obtained from generating units to properly manage dangerous and mixed waste at 305 B Storage Facility. In the event that such knowledge is not available, sampling and analysis is required by 305 B Storage Facility procedures prior to shipment to the storage unit.

The 305 B Storage Facility personnel shall collect from the generating unit(s) the information pursuant to 40 CFR 268.7(a) regarding LDR wastes: the appropriate treatment standards, whether the waste meets the treatment standards, and the certification that the waste meets the treatment standards, if necessary, as well as any waste analysis data that supports the generator's determinations. If this information is not supplied by the generating unit, then the 305 B Storage Facility personnel shall be responsible for completion and transmittal of all subsequent information regarding LDR wastes pursuant to 40 CFR 268.7(b). All waste streams must be re-characterized at least annually, or when generating unit

and/or 305 B Storage Facility personnel have reason to believe the waste stream has changed to determine compliance with LDR requirements in 40 CFR 268

Volumetric Description of Waste A wide range of waste volumes is collected from research and support activities. The largest unit container collected is a DOT container $<0.46 \text{ m}^3$ while the smallest is a trace amount in a small vial.

Large volume containers (greater than 4 L) (commonly contain chemicals such as those listed in WAC 173 303 9903 and 9904 and in 40 CFR 261 33) or commercial products which exhibit one or more of the dangerous waste characteristics or criteria. Greater than 99 percent of the containers generally contain chemicals for which information is easily accessible to determine dangerous designation. This information is generally obtained from the container label for those waste in original containers or from the material safety data sheet (MSDS) for the product.

Notification for Storing of Waste The waste analysis process begins when the waste management organization is notified of the presence of a chemical or mixed waste. This notification is accomplished by the generating unit completing and transmitting a Chemical Disposal/Recycle Request Form (for example see Figure 2.8). The form describes the volume and chemical composition of waste in each waste container for disposal. Hazard and compatibility information are obtained for each item on the disposal request form to ensure the safety of the waste management organization staff that collect and transport the waste and to ensure safe and appropriate storage in 305 B Storage Facility.

The compatibility and hazard class are determined using reference material that may include Condensed Chemical Dictionary, Merck Index, 49 CFR, NIOSH, Sigma Aldrich or any other reference material that is applicable. The priority of hazard designation for those substances with multiple hazards or for mixtures is the same used by the DOT in 49 CFR 173.2 (DOT 2000) as shown below:

- 1) Radioactive material
- 2) Poison A
- 3) Flammable gas
- 4) Nonflammable gas
- 5) Flammable liquid
- 6) Oxidizer
- 7) Flammable solid
- 8) Corrosive material (liquid)
- 9) Poison B
- 10) Corrosive material (solid)
- 11) Irritating materials
- 12) Combustible liquid (exceeding 110 gal)
- 13) Other Regulated Material (ORM) B
- 14) ORM A
- 15) Combustible liquid (less than 110 gal)
- 16) ORM E

Chemical Disposal and Recycle Requests (CDRR) and other information used for determining waste designations and compatibility must meet four distinct needs of the dangerous waste manager and sample collector. They must enable each to:

Identify those waste which are designated dangerous in accordance with WAC 173 303 and whether those waste are DW or EHW.

Determine whether the waste is restricted from land disposal under 40 CFR 268 or WAC 173 303 140 and as whether it complies with applicable treatment standards under 40 CFR 268 or WAC 173 303 140.

Identify and verify specific morphological characteristics of waste in solid or solution form.

Outline how to safely handle, transport, analyze, store, and dispose of the waste product or sample.

Physical Analysis Visual validation as a physical analysis procedure is strongly relied upon to confirm the nature of a waste collected or sampled and to determine the accuracy of the disposal request information received from the generating unit. It is impractical for the waste management organization to chemically analyze each container or vial of waste accepted for storage in 305 B Storage Facility since the amount can exceed 10 000 per year. A more realistic approach to reducing risks to safety and the environment and one implemented at 305 B Storage Facility includes trained and experienced personnel performing a visual inspection of the waste and direct inquiry of the generating unit's personnel. The waste is inspected to verify that it matches the description on the disposal request. If the waste is a discarded product, the contents of the container are inspected to verify that they match the description of the product. For other waste e.g. spent solvents, waste descriptions are compared with the products in use at the generating unit. Generating unit personnel are queried concerning the source of the waste and the materials used in the process generating the waste. This information is compared to the description of the waste on the disposal request. If, after visual inspection of the waste and interrogation of the generating unit personnel, any doubt remains as to the true identity of the waste, the waste is sampled and analyzed by the generating unit as described in Section 3.5.

Waste Collection at the Generating Unit When satisfactory information has been obtained from the CDRR Form, waste management organization staff visit the generating unit site and make a final inspection of the waste containers to determine whether the disposal request form and contents label information match completely. If the information on the disposal request matches with the container labeling and visual inspection, the waste are approved for storage. If discrepancies are found, the generating unit is required to resubmit the disposal request with accurate information. Unknown or unidentified materials are sampled by generating unit staff for identification of constituents and remain at the generating unit until the composition has been determined.

Labeling and Marking After inspection of the waste at the generating unit, the approved waste are assigned a unique computer identification number and hazard classification. The waste containers are then marked and labeled in compliance with WAC 173 303 190 (DOT marking and labeling) and Washington Hazardous Waste markings. Waste meeting Washington dangerous waste criteria under WAC 173 303 090 or 173 303 100 are marked Toxic (for waste designated WT01 or WT02) and/or Persistent (for waste designated WP01, WP02, or WP03) in accordance with WAC 173 303 630(3). In addition, each waste container is labeled with a list of constituents and/or an appropriate hazard description. The containers are also labeled indicating compatibility group and cell location and with a unique computer generated identification number created by the tracking system described below. This computerized information helps the waste handlers ensure safe handling, storage, retrieval, and transportation of dangerous waste.

Transportation The labeled containers are transported to 305 B Storage Facility by PNNL staff trained in applicable DOT requirements and emergency response. Waste is transported using a truck or light utility vehicle. For transport on roads accessible to the public, the vehicles are placarded in compliance with DOT regulations and documented in compliance with WAC 173 303 180 Hanford Facility Permit conditions II P and/or II Q as applicable.

Waste Handling, Storage, and Tracking at 305 B Storage Facility Waste received at 305 B Storage Facility is put into 13 separate hazard classifications based on building and fire code restrictions for that type of facility:

- 1) Nonflammable RMW
- 2) Oxidizers
- 3) Acids (organic and inorganic)
- 4) Poison
- 5) Caustics
- 6) Halogenated Hydrocarbons
- 7) Non Regulated
- 8) Miscellaneous (ORM categories)

- 9) Washington State only waste (e g sodium chloride sodium bicarbonate)
- 10) Flammable and combustible liquids
- 11) Flammable and combustible RMW
- 12) TSCA waste (PCB and asbestos) waste
- 13) Special Case waste (organic peroxides explosives etc)

Each hazard class has designated and clearly identified locations within 305 B Storage Facility Containers of dangerous waste (10 gal or less) are stored in a specific storage cabinet or shelf designed for that hazard class The cabinets are located inside the appropriate storage cell (i e acid storage cabinet in acid cell) DOT approved containers (typically 10 gal and larger but less than 0 46m³) are segregated by hazard class and can be stored in a appropriate storage cell or on the main high bay floor in 305 B Storage Facility

Only sealed containers of nonflammable RMW are received in the below grade RMW storage area located in the basement of 305 B Storage Facility Containers of flammable RMW are stored above grade in a flammable storage module adjacent to the high bay area All chemical storage is in accordance with fire protection requirements of the 1988 Uniform Fire Code (International Conference of Building Officials 1988)

Storage limits for all chemicals are listed in Table 4 1 (Uniform Building Code Table numbers 9 A and 9 B) This table is incorporated into this section by reference

Recordkeeping and Inventory Control A computer tracking system has been developed to ensure that complete records of current inventory packaging and shipping data are maintained Records of the initial waste disposal request form waste analysis results if required waste designation and shipping manifest are maintained As waste are received for disposal the containers are labeled with the information described in the Labeling and Marking section above including a unique computer identification number This number is also written on the disposal request form The label information is then entered into the computerized database along with the storage location within 305 B Storage Facility

The endpoint of the process for most waste is proper packaging and transport of the waste to an approved recycler or treatment/disposal facility Some commercial chemical products however are redistributed to other Hanford Site contractors as described in Section 10 4 Final computer verification of the history and ultimate disposal of each waste container is entered when the material is shipped from the 305 B Storage Facility

Current waste quantities in inventory are periodically verified and reported to the Unit Operations Supervisor The inventory is checked by hazard class and provides a measure of current inventory versus established limits

If it is determined that 305 B Storage Facility inventory is within 5 percent of the limit for a given hazard classification additional waste of that hazard class is not accepted into 305 B Storage Facility until the inventory has been reduced Exceptions must be approved by the unit operating supervisor

Unknown Waste and Waste Constituent Verification Containers with unknown waste compositions are not accepted at 305 B Storage Facility In the event that 305 B Storage Facility staff are required to respond to a critical need of a generating unit in the future and pick up an unknown waste it will be sampled and analyzed as described in Sections 3 2 1 through 3 2 6

If for any reason 305 B Storage Facility personnel believe that more stringent analysis of non reagent grade chemical waste is needed (i e flash cans and mixtures) they will request that the generating unit have the waste analyzed by an approved analytical laboratory Reasons for this request may be questionable appearance of the waste periodic confirmation of waste composition or historically unreliable information from a particular generating unit There is no established frequency for this sampling and analysis it is conducted on an as needed basis This analysis must be performed in accordance with EPA SW 846 procedures (EPA 1986) Analytical laboratories in the area with these

capabilities include commercial Hanford Site and Battelle operated laboratories. The generating unit must also provide the laboratory analysis confirming the waste composition when the waste management organization picks up the waste. This analysis will become part of the 305 B Storage Facility Operating Record.

3 2 3 Identification/EPA Classification and Quantities of Hazardous Wastes Managed Within the 305 B Storage Facility

Refer to Section 3 1 for a description of the types and quantities of wastes managed at 305 B Storage Facility.

3 2 4 Description of Hazardous Waste Management Units

The 305 B Storage Facility Waste Management Units are described in Attachment 18 305 Storage Facility Chapter 4 0 of the Hanford Facility RCRA Permit.

3 3 SELECTING WASTE ANALYSIS PARAMETERS

State and federal regulations [WAC 173 303 300(2) and (5)(a) WAC 173 303 140 40 CFR 268 7(a)] require that information be obtained, documented, and/or reported on wastes received by a TSD unit. These requirements include ensuring that only waste which meets 305 B Storage Facility unit specific permit requirements are accepted, and reporting the information required by WAC 173 303 380. In addition to providing a general description of the waste, the focus of the information collected for regulatory purposes is to ensure that the 305 B Storage Facility is permitted to accept and store the waste.

The 305 B Storage Facility only accepts wastes that have been characterized properly. Before receipt or acceptance of waste at the 305 B Storage Facility, generators must supply adequate information to characterize and manage wastes properly.

One of the most important aspects of operating the 305 B Storage Facility in a safe manner is to ensure that incompatible wastes are not mixed together. For the purposes of this document, waste are considered compatible if, when mixed, they do not: (1) generate extreme heat or pressure, fire, or explosion, or violent reaction; (2) produce uncontrolled toxic mists, dusts, or gases in sufficient quantities to threaten human health; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility containing the waste; or (5) through other like means threaten human health or the environment.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 305 B Storage Facility. The following are instances where sampling and laboratory analysis is required:

- inadequate information on PNNL generated waste
- 5 percent waste verification for PNNL generated waste
- 10 percent waste verification for non PNNL generated waste
- identification and characterization for unknown waste and spills within the unit

3 3 1 Parameter Selection Process

The selection of analytical parameters is based on the State of Washington's Dangerous Waste Regulations, WAC 173 303 300 and *EPA Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes: A Guidance Manual* (EPA 1994).

At least five percent of the waste containers received at 305 B during a federal fiscal year (October 1 through September 30) will undergo confirmation of designation pursuant to Sections 3 2 2 and 3 2 3 (Test Methods and Sampling Methods, respectively). The number of containers needed to meet the five percent requirement is five percent of the average of containers for the previous three months. For example, if 200 containers are received in January, 180 in February, and 220 in March, then 10 containers of received waste must undergo confirmation of designation in April. All generating units which ship

more than 20 containers through 305 B Storage Facility in a fiscal year will have at least one 1 container sampled and analyzed. Containers for which there is insufficient process knowledge or analytical information to designate without sampling and analysis may not be counted as part of the five percent requirement unless there is additional confirmation of designation independent of the generator designation. The generating unit's staff shall not select the waste containers to be sampled and analyzed other than identifying containers for which insufficient information is available to designate.

Containers of the following are exempt from the confirmation calculation above: Laboratory reagents or other unused products such as paint, lubricants, solvent, or cleaning products, whether received for redistribution, recycling, or as waste. To qualify for this exemption, such materials must be received at 305 B Storage Facility in their original containers.

Prior to acceptance of wastes at 305 B Storage Facility, confirmation of designation may be required (Section 3.7.3). The wastes that shall undergo confirmation of designation are identified in Condition III.2.B.f of this Permit and may be divided into two groups: those that easily yield a representative sample (Category I) and those that do not (Category II). The steps for each type are outlined below along with a description of which wastes fall into each category.

Category I: If a waste which easily yields a representative sample is received, a representative sample will be taken from the waste containers selected. If more than one phase is present, each phase must be tested individually. The following field tests will be performed as appropriate for the waste stream:

Reactivity: HAZCATTM oxidizer, cyanide, and sulfide tests. These tests will not be performed on materials known to be organic peroxides, ethers, and/or water reactive compounds.

Flashpoint/explosivity: by HAZCATTM flammability procedure, explosive atmosphere meter¹, or a closed cup flashpoint measurement instrument¹.

pH: by pH meter¹ or pH paper (SW 846 9041)². This test will not be performed on non-aqueous materials.

Halogenated organic compounds: by Chlor D TectTM kits.

Volatile organic compounds: by photo or flame ionization tester¹, by gas chromatography with or without mass spectrometry, or by melting point and/or boiling point determination.

If the sample data observed meets the parameters specified in its documentation, confirmation of designation is complete and the waste may be accepted. If not, the waste is rejected and returned to the generating unit for additional characterization. The waste will be required to be resubmitted with a revised Chemical Disposal/Recycle Request (CD/RR) following the additional characterization activity.

When mathematically possible, the Permittees shall perform confirmation on an equal number of Category I and Category II containers.

Category II: If a representative sample is not easily obtained (for example, discarded machinery or shop rags) or if the waste is a labpack or discarded laboratory reagent container, the following steps will be performed:

- a. Visually verify the waste. Examine each selected container to ensure that it matches the data provided on the CD/RR form(s) provided to document the waste. Labpacks and combination packages must be removed from the outer container. If the waste matches the description specified in its documentation, confirmation of designation is complete and the waste may be accepted. If not, the waste is rejected and returned to the generating unit, and the generating unit revises and resubmits the documentation.

¹ These instruments are field calibrated or checked for accuracy daily when in use.

² The pH paper must have a distinct color change every 0.5 pH units and each batch of paper must be calibrated against certified pH buffers, or by comparison with a pH meter calibrated with certified pH buffers.

to reflect the actual contents. If necessary, the waste shall be re-designated utilizing the designation methods identified in WAC 173 303 070 through 173 303 100.

Wastes must be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with Appendix II of 40 CFR 261 as amended in order to provide sufficient information for proper management and for decisions regarding LDR pursuant to 40 CFR 268.

3 3 2 Criteria and Rational for Parameter Selection

Waste testing methods, parameters and the rationale for these parameters are summarized in Table 3 1. Waste testing methods and references to these methods are as specified in WAC 173 303 110(3) or approved by Ecology in accordance with WAC 173 303 110(5). These methods are summarized in Table 3 1. All methods are specified in *Chemical Testing Methods* WDOE 83 13 (Ecology 1983) and/or *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* EPA SW 846 (EPA 1986).

Testing parameters for each type of waste were selected to obtain data sufficient to designate the waste properly under WAC 173 303 070, meet requirements for Land Disposal Restrictions, and to manage the waste properly. If information on the source of the waste is available, then all parameters might not be required, e.g., exclusion of testing for pesticides from a metal machining operation.

Some of the parameters that are considered for waste received at the 305 B Storage Facility are as follows:

Physical description – used to determine the general characteristics of the waste. This facilitates subjective comparison of the sampled waste with previous waste descriptions or samples. Also, a physical description is used to verify the observational presence or absence of free liquids.

pH – used to identify the pH and corrosive nature of an aqueous or solid waste to aid in establishing compatibility strategies and to indicate if the waste is acceptable for treatment and/or storage in the 325 HWTUs.

Cyanide – used to indicate whether the waste produces hydrogen cyanide upon acidification below pH 2.

Sulfide screen – used to indicate if the waste produces hydrogen sulfide upon acidification below pH 2.

Halogenated hydrocarbon content screen – used to indicate whether chlorinated hydrocarbons or polychlorinated biphenyls (PCBs) are present in waste and to determine if the waste needs to be managed in accordance with the regulations prescribed in the *Toxic Substance Control Act of 1976*.

Ignitability – used to identify waste that must be managed and protected from sources of ignition or open flame.

HAZCAT™ testing tests – used to determine waste characteristics and verify generator knowledge. The testing procedures for each HAZCAT™ test are included in the HAZCAT™ kit.

3 3 3 Special Parameter Selection Requirements

The 305 B Storage Facility does not have any process vents that manage hazardous waste with organic concentrations of at least 10 part per million by weight percent, or pumps or compressors used more than 300 hours per year that come into contact with hazardous waste with an organic concentration of at least 10 percent by weight.

A variety of small volume chemical wastes are generated by PNNL's research laboratory activities. These containers typically range in sizes from 10 mil to 20 gallon. These wastes are brought to the 305 B Storage Facility and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30 to 55 gallon drum. All containers having a design capacity greater than 0.1 m³ to less than or equal to 0.46 m³ are equipped with a cover and

complies with all applicable Department of Transportation regulations on packaging hazardous waste for transport under 49 CFR part 178

DOT approved intermediate bulk packaging may be utilized for some solid wastes. These containers range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for solid waste only.

3.4 SELECTING SAMPLING PROCEDURES

3.4.1 Sampling Strategies and Equipment

Sample collection methods conform to the representative sample methods referenced in WAC 173.303.110(2). The summary of test parameters, rationales, and sampling methods are identified in Table 3.1.

Representative samples of liquid waste from containers (vertical core sections) are typically obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long enough to reach the bottom of the container in order to provide a representative sample of all phases of the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for individual testing depending on the waste management pathways of the phases.

Other waste types that might require sampling are sludges, powders, and granules. In general, non-viscous sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using a trier, as specified in SW 846. Dry powders and granules are sampled using a thief, also as specified in SW 846.

Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-contamination. If non-disposable sampling equipment is used, it is decontaminated between samples using the guidelines in the unit sampling procedure.

Representative sampling may be requested by unit staff to ensure proper waste identification. Sampling may be performed by unit personnel or the generating unit producing the waste. The number of grab samples collected from a container depends on the amount of waste present and on the homogeneity of the waste as determined by observation. In some cases, there will be only one container of waste present. In such cases, only one vertical composite sample will be collected (e.g., COLIWASA). If more than one container is present, a random number of samples will be collected and analyzed statistically using the procedures specified in Section 9.2 of SW 846 (EPA 1986).

In all instances, sampling methods will conform to the representative sample method referenced in WAC 173.303.110(2), i.e., ASTM standards for solids and SW 846 for liquids. The specific sampling methods and equipment used varies with the chemical and physical nature of the waste material and the sampling circumstances.

3.4.2 Sampling Preservation and Storage

All sample containers, preservation techniques, and hold times follow SW 846 protocol. Many samples are analyzed at the 305 B Storage Facility utilizing prepackaged test kits and are not preserved.

3.4.3 Sampling QA/QC Procedures

Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its activities. A crucial element in maintaining that standard is a quality assurance program that provides management controls for conducting activities in a planned and controlled manner and enabling the verification of those activities.

The QA/QC objective of the 305 B Storage Facility is to control and characterize errors associated with collected data and to illustrate that waste testing has been performed according to specification in this waste analysis plan.

The 305 B Storage Facility has developed procedures to ensure that precision and accuracy are maintained throughout the waste analysis process. For analysis using SW 846 methods, the program will follow the QA/QC guidance set forth in SW 846 at a minimum. Good laboratory practices which encompasses sampling, sampling handling, housekeeping, and safety are followed throughout the process. There are many elements of QA/QC associated with the sampling processes at the 305 B Storage Facility. These practices ensure that all data and the decisions based on that data are technically sound, statistically valid, and properly documented.

Activities pertaining to waste analysis include, but are not limited to, the preparation, review, and control of procedures and the selection of analytical laboratories. The Laboratory's QA manual has administrative procedures that establish requirements and provide guidance for the preparation of analytical and technical (i.e., sampling chain of custody, work processes) procedures, as well as other administrative procedures. Procedures undergo a review cycle and, once issued, are controlled to ensure that only current copies are used.

The primary purpose of waste testing is to ensure that the waste is properly characterized in lieu of process knowledge data in compliance with RCRA requirements for general waste analysis [WAC 173.303.300(2), 40 CFR 264.13]. Waste testing also is performed to ensure the safe management of waste being stored, proper disposition of residuals from incidents that might occur, and control of the acceptance of waste for storage. The specific objectives of the waste sampling and analysis program at the 305 B Storage Facility are as follows:

- Identify the presence of waste that is substantially different from waste currently stored.

- Provide a detailed chemical and physical analysis of a representative sample of the waste before the waste is accepted at or transferred from the 305 B Storage Facility to an offsite TSD facility to ensure proper management and disposal.

- Provide an analysis that is accurate and up to date to ensure that waste is properly treated and disposed of.

- Ensure safe management of waste undergoing storage at the 305 B Storage Facility.

- Ensure proper disposal of residuals.

- Ensure compliance with LDRs.

- Identify and reject waste that does not meet the 305 B Storage Facility's acceptance requirements (e.g., incomplete information).

- Identify and reject waste that does not meet specifications for the 305 B Storage Facility (i.e., Part A Form 3 listing restricted from storage at the 305 B Storage Facility).

QA/QC Objectives

The objectives of the QA/QC program are two-fold. The first objective is to control and characterize any errors associated with the collected data. Quality assurance activities, such as the use of standard procedures for locating and collecting samples, are intended to limit the introduction of error. Quality control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, ensure that the specified procedures are followed and that the QA information needed for characterizing error is obtained.

The second QA/QC objective is to illustrate that waste testing has been performed according to specification in this waste analysis plan. The QA/QC activities will include the following:

- Field inspections – performed and documented by 305 B Storage Facility staff or designee depending on the activity. The inspections primarily are visual examinations but might include

measurements of materials and equipment used techniques employed and the final products The purpose of these inspections is to verify that a specific guideline specification or procedure for the activity is completed successfully

Field testing – performed onsite by 305 B Storage Facility staff (or designee) according to specified procedures

Laboratory analyses – performed by onsite or offsite laboratories on samples of waste The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level

Sampling Objectives

The data quality objectives (DQO) for the waste sampling and data analyses are as follows

Determine if waste samples are representative of the contents of the containers at the time the samples were taken

Determine if waste samples are representative of long term operations affecting the 305 B Storage Facility

Determine if waste accepted for storage is within the RCRA permit application documentation limitations

Determine if waste accepted for storage meets the requirements of the 305 B Storage Facility waste acceptance criteria

Determine if waste accepted for storage meets the information provided by the generator

Data Collection/Sampling Objectives

The acquired data need to be scientifically sound of known quality and thoroughly documented The DQOs for the data assessment will be used to determine compliance with national quality standards which are as follows

Precision – The precision will be the agreement between the collected samples (duplicates) for the same parameters at the same location and from the same collection vessel

Representativeness – The representativeness will address the degree to which the data accurately and precisely represent a real characterization of the population parameter variation at a sampling point sampling conditions and the environmental condition at the time of sampling The issue of representativeness will be addressed for the following points

Based on the generating process the waste stream and its volume an adequate number of sampling locations are selected

The representativeness of selected media has been defined accurately

The sampling and analytical methodologies are appropriate

The environmental conditions at the time of sampling are documented

Completeness – The completeness will be defined as the capability of the sampling and analytical methodologies to measure the contaminants present in the waste accurately

Comparability – The comparability of the data generated will be defined as the data that are gathered using standardized sampling methods standardized analyses methods and quality controlled data reduction and validation methods

Analytical Objectives

Analytical data will be communicated clearly and documented to verify that laboratory data quality objects are achieved

Field Quality Assurance and Quality Control

Internal QA/QC checks will be established by submitting QA and QC samples to the analytical laboratory. The number of field QA samples will be approximately 5 percent of the total number of field samples taken. The 5 percent criterion commonly is accepted for a minimum number of QA/QC samples. The types and frequency of collection for field QA samples are as follows:

Field Blanks – A sample of analyte free media taken from the laboratory to the sampling site and returned to the laboratory unopened. Field blanks are prepared and preserved using sample containers from the same lot as the other samples collected that day. A sample blank is used to document contamination attributable to shipping and field handling procedures. This type of blank is useful in documenting contamination of volatile organics samples.

Field Duplicates – defined as independent samples collected in such a manner that the samples are equally representative of the variables of interest at a given point in space and time. The laboratory will use the field duplicate as laboratory duplicate and/or matrix spikes. Thus, for the duplicate sample, there will be the normal sample analysis, the field duplicate, and the laboratory duplicate (inorganic analysis). Duplicate samples will provide an estimate of sampling precision.

Laboratory Quality Assurance and Quality Control

All analytical work, whether performed by independent laboratories, is defined and controlled by a Statement of Work prepared in accordance with administrative procedures. The daily quality of analytical data generated in the analytical laboratories will be controlled by the implementation of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- sample custody and management practices
- requirements for sample preparation and analytical procedures
- instrument maintenance and calibration requirements
- internal QA/QC measures, including the use of method blanks
- required sample preservation protocols
- analysis capabilities

The types of internal quality control checks are as follows:

Method Blanks – Method blanks usually consist of laboratory reagent grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard sample would be reported.

Method Blank Spike – A method blank spike is a sample of laboratory reagent grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.

Laboratory Control Sample – A QC sample introduced into a process to monitor the performance of the system.

Matrix Spikes – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. Matrix spikes will be performed on 5 percent of the samples (1 in 20) or one per batch of samples.

Laboratory Duplicate Samples – Duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory duplicates monitor the precision of the analytical method for the sample matrix; however, the analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples. Duplicates are performed only in association with selected protocols. Duplicates are performed only

in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then the sample set must be reanalyzed for the parameter in question.

Known QC Check Sample – This is a reference QC sample as denoted by SW 846 of known concentration obtained from the EPA, the National Institute of Standards and Technology, or an EPA approved commercial source. This QC sample is taken to check the accuracy of an analytical procedure. The QC sample is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC check standard analysis are compared with the true values, and the percent recovery of the check standard is calculated.

PNNL Analytical Chemistry Laboratory QA/QC

PNNL's analytical chemistry laboratory may need to be used to analyze samples of high activity dangerous waste. It has a rigorous QA plan that ensures that data produced are defensible, scientifically valid, and of known precision and accuracy, and meets the requirements of its clients.

Offsite Laboratory QA/QC

When it is necessary to send samples to an independent laboratory, contracts are not awarded until a pre award evaluation of the prospective laboratory has been performed. The pre award evaluation process involves the submittal of its QA plan to PNNL QA staff and the unit operating supervisor. It also may involve a site visit by QA personnel and a technical expert, or may consist of a review of the prospective laboratory's QA/QC documents and records of surveillances/inspections, audits, non conformances, and corrective actions maintained by PNNL or other Hanford Facility contractors.

Recordkeeping

Records associated with the waste analysis plan and waste verification program are maintained by the waste management organization. A copy of the CDRR for each waste stream accepted at the 305 B Storage Facility is maintained as part of the operating record. Generators maintain their sampling and analysis records. The waste analysis plan will be revised whenever regulation changes affect the waste analysis plan.

Staff of the 305 B Storage Facility has a goal of continuous improvement by ensuring that all analytical data produced is of known accuracy and precision, exceeds all industry standards, and is scientifically valid. Using the above practices and following the appropriate 305 B Storage Facility operating procedures, staff can monitor and ensure that progress is being made in the quality of the data produced.

3.4.4 Health and Safety Protocols

During all sampling activities, precautions will be taken to ensure that waste containers do not expel gases and/or pressurized liquids. All personnel will be properly trained in safety and handling techniques.

3.5 SELECTING A LABORATORY AND LABORATORY TESTING AND ANALYTICAL METHODS

3.5.1 Selecting a Laboratory

Laboratory selection is limited; only a few laboratories are equipped to handle mixed waste because of special equipment and procedures that must be used to minimize personnel exposure. Preference will be given to any PNNL facility or other laboratories on the Hanford Facility that exhibit demonstrated experience and capabilities in three major areas:

- comprehensive written QA/QC program based on DOE/RL requirements specifically for that laboratory

- audited for effective implementation of QA/QC program

- participate in performance evaluation samples to demonstrate analytical proficiency

All laboratories (onsite or offsite) are required to have the following QA/QC documentation

Daily analytical data generated in the contracted analytical laboratories is controlled by the implementation of an analytical laboratory QA plan

Before commencement of the contract for analytical work the laboratory will have their QA plan available for review At a minimum the QA plan will document the following

sample custody and management practices

requirements for sample preparation and analytical procedures

instrument maintenance and calibration requirements

internal QA/QC measures including the use of method blanks

required sample preservation protocols

analysis capabilities

3 5 2 Selecting Testing and Analytical Methods

PNNL waste generators may need to conduct analyses to provide information to fill out Chemical Disposal & Recycle Requests (CDRRs) and to determine compatibility safety and operating information As needed 305 B Storage Facility staff also will conduct analyses to determine completeness of information and if the waste meets the acceptance criteria for disposal treatment or storage at one of the Hanford Facility permitted treatment/storage/disposal areas or that of one of the offsite TSD facilities Testing and analytical methods will depend on the type of analysis sought and the reason for needing the information

Chemists and/or appropriate personnel working under approved QA guidelines perform all testing Analytical methods will be selected from those that are described in Section 3 3 1

3 6 SELECTING WASTE RE EVALUATION FREQUENCIES

Some analysis will be needed to verify that waste streams received by the 305 B Storage Facility conform to the information on the CDRR and or the waste analysis sheet supplied by the generator If discrepancies are found between information on the CDRR hazardous waste manifest shipping papers waste analysis documentation and verification analysis then the discrepancy will be resolved by

returning waste to the generator or sample and analyze the materials in accordance with WAC 173 303 110 and/or

reassessing and redesignating the waste repackaging and labeling as necessary or return to the generator

Periodic re evaluation provides verification that the results from the initial verification are still valid Periodic re evaluation also checks for changes in the waste stream

Exceptions to physical screening for verification are

Analysis and characterization as required by WAC 173 303 300(2) are performed on each waste before acceptance at the 305 B Storage Facility to determine waste designation and characteristics The characterization of the waste based on this information is reviewed each time a waste is accepted The information must be updated by the generator when the waste stream changes or if the following occurs

The 305 B Storage Facility personnel have reason to suspect a change in the waste based on inconsistencies in packaging labeling or visual inspection of the waste

The information submitted previously does not match the characteristics of the waste submitted

1 Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste
2 that is stored at the 305 B Storage Facility The following are instances where sampling and laboratory
3 analysis are required

4 inadequate information on PNNL generated waste

5 waste streams generated onsite will be verified at 5 percent of each waste stream

6 inadequate information before waste was shipped or discrepancy discovered

7 waste streams received from offsite generators will be verified at 10 percent of each waste stream
8 applied per generator per shipment

9 identification and characterization for unknown waste and spills

10 3 7SPECIAL PROCEDURAL REQUIREMENTS

11 3 7 1 Procedures for Receiving Waste From off site Generators

12 Most of the waste stored at 305 B Storage Facility is generated on the Hanford Site and/or by PNNL
13 research programs within the 300 Area Additional requirements for waste generated outside the
14 300 Area include proper manifesting (if appropriate) to 305 B Storage Facility and proper packaging for
15 transport over public roadways Although PNNL waste generated outside of the 300 Area is considered
16 to be generated offsite since it may be transported to 305 B Storage Facility on roads accessible to the
17 public it is under the same administrative controls as waste that are generated onsite (i e in the
18 300 Area)

19 The generator is responsible for identifying waste composition accurately and arranging for the transport
20 of the waste The 305 B Storage Facility maintains a copy of any pertinent operating record in
21 accordance with WAC 173 303 and the time frames described in Attachment 33 Chapter 12 of the
22 Hanford Facility RCRA Permit Dangerous Waste Portion General Information Portion) The waste
23 tracking methods are as follows

24 **Inspection of Shipping Papers/Documentation** – The necessary shipment papers for the entire
25 shipment are verified (i e signatures are dated all waste containers included in the shipment are
26 accounted for and correctly indicated on the shipment documentation there is consistency throughout
27 the different shipment documentation and the documentation matches the labels on the containers)

28 **Inspection of Waste Containers** – The condition of waste containers is checked to verify that the
29 containers are in good condition (i e free of holes and punctures)

30 **Inspection of Container Labeling** – Shipment documentation is used to verify that the containers are
31 labeled with the appropriate Hazardous/Dangerous Waste labeling and associated markings
32 according to the contents of the waste container

33 **Acceptance of Waste Containers** – The 305 B Storage Facility personnel sign the Shipment
34 documents and retain a copy

35 If Shipment will be received from or destined offsite then a Uniform Hazardous Waste Manifest will be
36 prepared identifying the 305 B Storage Facility as the receiving unit (Hanford Facility Permit
37 Condition II P The 305 B Storage Facility operations staff will sign and date the manifest to certify that
38 the dangerous waste covered by the manifest was received The transporter will be given at least one
39 copy of the signed manifest A copy of the manifest will be returned to the generator within 30 days of
40 receipt at the 305 B Storage Facility A copy of the manifest also will be retained in the 305 B Storage
41 Facility operating record

42 For onsite waste transfers subject to Hanford RCRA Permit Dangerous Waste Portion Condition II Q 1
43 documentation meeting that requirement will be prepared and accompany the shipment The
44 documentation will be maintained in the Operating Record

Response to Significant Discrepancies

The primary concern during acceptance of containers for storage is improper packaging or manifest discrepancies. Containers with such discrepancies are not accepted at the 305 B Storage Facility until the discrepancy has been resolved. Depending on the nature of the condition, such discrepancies can be resolved through the use of one or more of the following alternatives:

- Incorrect or incomplete entries on the Uniform Hazardous Waste Manifest can be corrected or completed with concurrence of the onsite generator or offsite generator. Corrections are made by drawing a single line through the incorrect entry. Corrected entries are initialed and dated by the individual making the correction.

- The waste packages can be held and the onsite generator or offsite waste generator requested to provide written instructions for use in correcting the condition before the waste is accepted.

- Waste packages can be returned as unacceptable.

- If a noncompliant dangerous waste package is received from an offsite waste generator and the waste package is non returnable because of condition, packaging, etc., and if an agreement cannot be reached among the involved parties to resolve the noncompliant condition, then the issue will be referred to DOE RL and Ecology for resolution. Ecology will be notified in writing if a discrepancy is not resolved within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages, although not accepted, might be placed in the 305 B Storage Facility. The package(s) will be segregated from other waste and an entry will be made into the 305 B Storage Facility logbook describing the actions that were taken to store the packages in a safe manner until a resolution has been reached.

Activation of Contingency Plan for Damaged Shipment

If waste shipments arrive at the 305 B Storage Facility in a condition that presents a hazard to public health or the environment, the Building Emergency Procedure is implemented as described in the Hanford Facility RCRA Permit Attachment 18, Chapter 7.0 for the 305 B Storage Facility.

3.7.2 Procedures for Ignitable, Reactive, and Incompatible Wastes

Ignitable, reactive, and incompatible wastes are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988). Containers of ignitable, reactive, and incompatible wastes are stored in individual flammable material storage cabinets within the storage cells.

Section 6.5.2 describes procedures used at 305 B Storage Facility to determine the compatibility of dangerous wastes so that incompatible wastes are not stored together. Chemical wastes stored in 305 B Storage Facility are separated by compatibility, chemical makeup, and hazard class and stored in areas having appropriate secondary containment, as described in Section 4.1.1.6.

As shown in Figures 4.1 through 4.10, each storage area has individual storage configurations. Secondary containment structures are provided to assure that incompatible materials will not commingle if spilled. Further segregation is provided by chemical storage cabinets located throughout the facility in various areas as shown in Figures 4.1 through 4.10. Cabinet types are noted in those figures and capacities described in Table 4.2. Incompatible wastes are never placed in the same container or in unwashed containers that previously held incompatible waste.

Compliance with WAC 173.303.395(1)(b) is assured by utilizing this system and the procedure for handling ignitable or reactive waste and mixing of incompatible waste, as described in Section 6.5.2.

3 7 3 Procedures To Ensure Compliance With LDR Requirements

LDR Waste Analysis Requirements

The *Hazardous and Solid Waste Amendments of 1984* prohibit the land disposal of certain types of waste that are subject to RCRA. Many of the waste types stored at the 305 B Storage Facility fall within the purview of these land disposal restrictions (LDRs). Information presented below describes how generators and 305 B Storage Facility personnel characterize, document, and certify waste subject to LDR requirements.

Waste Characterization

Before being received at the 305 B Storage Facility, the RCRA waste characteristics, the level of toxicity characteristics, and the presence of listed waste are determined during the physical and chemical analyses process. This information allows waste management personnel to make all LDR determinations accurately and complete appropriate notifications and certifications.

Sampling and Analytical Procedures

The LDR characterization and analysis is generally performed as part of the waste characterization and analysis process. If waste is sampled and analyzed for LDR characterization, then only EPA or equivalent methods are used to provide sufficient information for proper management and for decisions regarding LDRs pursuant to 40 CFR 268.

Frequency of Analysis

Before acceptance and during the waste characterization and analysis process, all LDR characterizations and designations are made. The characterization and analysis process is performed when a CDRR is submitted for waste pick up, unless there is insufficient data or if the waste stream has changed. Instances where sampling and laboratory analysis may be required to determine accurate LDR determinations include the following:

- when waste management personnel have reason to suspect a change in the waste based on inconsistencies on the CDRR, packaging, or labeling of the waste.

- when the information submitted previously by a generator does not match the characteristics of the waste that was submitted.

- when the offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with the waste profile provided by the 305 B Storage Facility that was established using generator information.

Dangerous waste types listed in Table 3.1 are sampled as needed on an individual container or batch basis before they are collected from the point of generation or prior to shipment offsite. After the dangerous constituents have been characterized, these waste streams will not be analyzed again until process or raw material changes occur.

Documentation and Certification

The 305 B Storage Facility has and will continue to receive and store LDR waste. Because 305 B Storage Facility personnel determine designations and characterization, including LDR determinations, all notifications and certifications, as required by 40 CFR 268, are prepared by qualified staff for PNNL generated waste. The 305 B Storage Facility staff collects from the generator(s) the information pursuant to 40 CFR 268 regarding LDR wastes. The notifications and certifications are submitted to onsite and offsite TSD units during the waste shipment process. Additionally, any necessary LDR variances are prepared and submitted by PNNL qualified staff.

The 305 B Storage Facility staff requires applicable LDR information/notifications from non PNNL generators.

1 Where an LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268
2 Subpart D or exceeds the application prohibition levels set forth in 40 CFR 268 32 or Section 3004(d) of
3 RCRA the 305 B Storage Facility provides to the onsite and offsite TSD a written notice that includes
4 the following information

5 EPA hazardous waste number
6 the corresponding treatment standards and all applicable prohibitions set forth in WAC 173 303
7 40 CFR 268 32 or RCRA Section 3004(d)
8 the manifest number associated with the waste
9 all available waste characterization data
10 identification of underlying hazardous constituents

11 In instances where 305 B Storage Facility staff determines that a restricted waste is being managed that
12 can be land disposed without further treatment 305 B Storage Facility staff submits a written notice and
13 certification to the onsite or offsite TSD where the waste is being shipped stating that the waste meets
14 applicable treatment standards set forth in WAC 173 303 140 (40 CFR 268 Subpart D) and the
15 applicable prohibition levels set forth in 40 CFR 268 32 or RCRA Section 3004(d) The notice includes
16 the following information

17 EPA hazardous waste number
18 corresponding treatment standards and applicable prohibitions
19 waste tracking number associated with the waste
20 all available waste characterization data
21 identification of underlying hazardous constituents

22 The certification accompanying any of the previously described notices is signed by an authorized
23 representative of the generator and states the following

24 I certify under penalty of law that I personally have examined and am familiar with the waste through
25 analysis and testing or through knowledge of the waste to support this certification that the waste
26 complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable
27 prohibitions set forth in 40 CFR 268 32 or RCRA Section 3004(d) I believe that the information I
28 submitted is true accurate and complete I am aware that there are significant penalties for submitting a
29 false certification including the possibility of a fine and imprisonment

30 Copies of all notices and certifications described are retained at the TSD unit for at least five years from
31 the date that the waste was last sent to an onsite or offsite TSD unit After that time the notices and
32 certifications are sent to Records Storage

Table 3 1 Summary of Test Parameters Rationales and Methods

Parameter ^a	Method ^b	Rationale for Selection
Physical Screening		
Visual inspection	Field method observe phases presence of solids in waste	Ensure that waste matches that described on waste acceptance documentation identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics	Water mix screen ASTM Method D5232 92	Ensure that waste matches that described on waste acceptance documentation identify separable organics identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Water reactivity	Water mix screen ASTM Method D5232 92	Ensure that waste matches that described on waste acceptance documentation ensure compliance with WAC 173 303 395(1)(b)
pH	pH screen SW 846 Method 9041	Ensure that waste matches that described on waste acceptance documentation ensure compliance with WAC 173 303 395(1)(b)
Cyanides	Cyanide screen HAZCAT™	Ensure that waste matches that described on waste acceptance documentation ensure compliance with WAC 173 303 395(1)(b)
Sulfides	Sulfide screen HAZCAT™	Ensure that waste matches that described on waste acceptance documentation ensure compliance with WAC 173 303 395(1)(b)
Pre Shipment Review		
Mercury (total)	Generator knowledge or SW 846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Toxicity characteristic organic compounds	Generator knowledge or SW 846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds)	Identify waste not identified on the Part A Form 3
Polycyclic aromatic hydrocarbons	Generator knowledge or SW 846 Method 8270 or 8100	Identify waste not identified on the Part A Form 3 (for waste with >1% solids and for which WP03 could apply)

Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit
Operation limits transfer/shipments are based on current waste acceptance criteria

^b Procedures based on EPA SW 846 unless otherwise noted When regulations require a specific method the method shall be followed

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4 0 PROCESS INFORMATION [D]

4 1 CONTAINERS [D 1]

The following sections describe the types of containers stored at the 305 B Storage Facility

4 1 1 Containers With Free Liquids [D 1a]

Containers with free liquids are discussed below

4 1 1 1 Description of Containers [D 1a(1)]

Most waste stored at the 305 B Storage Facility are received in their original as procured containers. Containers of hazardous materials entering 305 B Storage Facility are inspected before being accepted for storage. Generating units are responsible for placing the materials in adequate containers. Repackaged materials must be placed in containers that are new and compatible with the materials to be stored.

Containers in poor condition or inadequate for storage are not accepted at the unit. If transport is by unit personnel, such containers are not accepted for transport. Refer to Section 6 4 1 for inspection before transport performed by unit personnel. Container in poor condition or inadequate for storage means a container which is not intact or undamaged and which is not securely sealed to prevent leakage during storage, transport and ultimate offsite disposal. Examples of acceptable packaging include laboratory reagent bottles, DOT containers, spray cans, sealed ampules with septums, paint cans, leaking containers which have been overpacked, etc. Unit operations personnel have the authority to determine whether a container is in poor condition or inadequate for storage using the criteria of WAC 173 303 190 and professional judgment whether the packaging may leak during handling, storage and/or disposal.

As with all waste, repackaged containers of dangerous waste are marked and/or labeled to describe the contents of the container and the major hazards of the waste as required under WAC 173 303. Containers are also marked with a unique identifying number assigned by the unit's computerized waste tracking system.

All flammable liquid waste are stored in compatible DOT specified shipping containers and/or in Underwriter's Laboratory (UL) listed and Factory Mutual (FM) approved flammable storage cabinets. Solid chemicals are stored on shelving in specifically designated areas based on the DOT hazard classification.

All containers utilized for offsite transport of dangerous waste at the unit are selected and shall comply with all applicable criteria found in WAC 173 303 190.

4 1 1 2 Container Management Practices [D 1a(2)]

Management practices and procedures for containers of dangerous waste are in place at the 305 B Storage Facility to assure the safe receipt, handling, preparation for transport, and transportation of waste. These practices and procedures are summarized below.

Inspection of Containers. A system of daily, weekly, monthly, and yearly inspections is in place to ensure container integrity, check for proper storage location, prevent capacity overrun, etc. These inspection procedures are detailed in Section 6 2.

Container Handling. All unit staff is instructed in proper container handling safeguards as part of their training (refer to Section 8 1 2 for further details). For example, employees are instructed to open all high vapor pressure liquids in the flammable liquid bulking module to avoid buildup of vapors in the unit. Containers are always kept closed except when adding or removing waste in accordance with WAC 173 303 630(5)(a).

Containers are not opened handled or stored in a manner that would cause the container to leak or rupture Small containers (five gallons or less capacity) are stored on shelving or in approved flammable liquid storage lockers (if appropriate) Containers over five gallons capacity are stored on the floor of the appropriate storage cell in cabinets or stored in the appropriate containment area on the high bay floor under Section 4 3 2 Unnecessary handling not required for redistribution or preparation for transport and disposal by either labpacking or bulking is minimized Crane or chain hoist or forklift moves drums manually For manual movement hand trucks specifically designed for drum handling are used Crane and chain hoist operations are performed following the appropriate Hoisting and Rigging procedures When using the forklift a drum hoist is used or the drums are carried on pallets Drums are never carried on the forks or speared by slipping the forks under the chime When waste handling operations are conducted a minimum of two persons is present in the unit

Lab Packing One of the major functions of the 305 B Storage Facility is the preparation of lab packs for offsite recycling treatment and/or disposal of small quantity lab waste generated by DOE RL/PNNL activities

Lab packs are prepared in compliance with WAC 173 303 161 49 CFR 173 12 other applicable regulations and permit conditions of the planned receiving facility (recycler treatment facility or disposal facility) Permit conditions affecting preparation of lab packs might include types of absorbent materials to be used (e g no vermiculite)

Lab packs are prepared in the storage cell containing the hazard class(es) to be placed in the lab pack The elephant trunk ventilator system may be used to minimize respirable dusts from the absorbent material being used (usually vermiculite Lab packs may also be prepared in the flammable liquid bulking module if appropriate for instance if compatible materials from more than one storage cell are being combined in a single lab pack drum Lab packs may be prepared in the high bay storage area if storage of the completed lab pack is permitted there per Section 4 3 2

Partial and completed lab packs are closed labeled and the contents list documented Labpacks are stored in the cell from which the containers inside were drawn or in the high bay if appropriate

Unit personnel wear appropriate protective clothing while handling containers being placed in lab packs At a minimum this includes labcoats safety glasses or other protective eyewear and chemical resistant gloves More stringent requirements including use of respiratory protection may be imposed if appropriate

Bulking In order to promote greater recycling or treatment of waste and reduce land disposal some liquid waste are bulked into larger containers typically 30 or 55 gallon closed head drums Bulking operations for chemicals that are respiratory or flammability hazards are performed in the flammable liquid bulking module (Also referred to as cell 5) located in the southwest corner of the unit Bulking of nonvolatile low hazard waste such as saline solutions or ethylene glycol may be done within the containment areas of the appropriate storage cell or high bay

Compatibility of waste to be bulked is determined using the information from generating unit designation information process knowledge laboratory analyses and/or the compatibility determinations described in Section 6 5

Containers are transported by hand or forklift to the flammable liquid bulking module area The receiving drum (typically 30 or 55 gallon capacity) is placed in the module and the ventilation system is activated A large chemically resistant funnel (either metal or plastic depending on material to be introduced) is used to pour the material into the drum The contents of the smaller containers are then poured one at a time into the larger drum The receiving drum is monitored by unit personnel to make sure no incompatibility is observed (e g fuming bubbling or heat generation) If such incompatibility is

observed no further material is added and the worker leaves the area closing the module and leaving the ventilation on. The unit supervisor is notified to evaluate implementation of the contingency plan.

Glass containers which have been emptied (as defined by WAC 173 303 160(2)) as a result of bulking activities are crushed onsite by an electric glass crusher which mounts on a 55 gallon drum. If an emptied glass container held acutely hazardous waste as defined by WAC 173 303 040(2) the container is rinsed at least three times with an appropriate cleaner or solvent before being destroyed. The rinsates are managed as dangerous waste. Crushed glass is managed as solid waste in accordance with WAC 173 303 160(3).

Once bulking is complete the bulk container is closed labeled and the contents list documented. Containers of bulked waste are stored in the cell from which the containers inside were drawn or in the high bay if appropriate.

Unit personnel wear appropriate protective clothing while bulking containerized liquid waste. At a minimum this includes coveralls disposable splash resistant apron eye protection and chemical resistant gloves. More stringent requirements including use of respiratory protection may be imposed if appropriate.

4 1 1 3 Secondary Containment System Design and Operation [D 1a(3)]

Several design features have been engineered into the construction of the 305 B Storage Facility as added safeguards for containment of dangerous waste spills or leaks. Design drawings for 305 B Storage Facility are included in Appendix 4A. The following subsections comment briefly on each of the design features.

4 1 1 4 Requirement for Base or Liner to Contain Liquids [D 1a(4)]

The base of the facility consists of a 6 inch reinforced poured concrete slab with no cracks or gaps. The concrete was mixed in accordance with ASTM 094 Section 5 3 Alternate 2 and all exposed surfaces were finished with a smooth troweled surface. Expansion joint material is Sonneborn Sonoflex FTM polyethylene filler. The bonding compound used at the expansion joints was Sonneborn SonobondTM two part epoxy. All edges and corners were sealed with a continuous bead of polysulfide sealant.

A chemically resistant sealant paint was applied in February 1989 to the storage cells and high bay floor and in October 1990 to drum storage areas noted in Sections 4 1 1 6 6 4 1 1 6 7 and 4 1 1 6 8. Specific areas of 1989 application are shown on Plate 4 1 and painting methods (surface preparation and application of coatings) are described on Plate 4 2 of Appendix 4A of this permit application. The surface coating is Coronado #101 1 (101 Series) Polyamide Epoxy Coating. Estimated service life of the coating material is 14 years per manufacturer's literature. Performance specifications and a compatibility chart are provided in Appendix 4B.

The condition of the floor coating is inspected weekly per Section 6 2 1 1 and repairs are made as needed. Immediate repairs are indicated whenever the coating is observed to have been chipped bubbled up scraped or otherwise damaged in a manner that would significantly impact the ability of the coating to contain spilled materials. Minor nicks and small chips resulting from normal operations will be repaired on a periodic basis. Repairs are performed in accordance with procedures provided by the manufacturer in Appendix 4B.

4 1 1 5 Containment System Drainage [D 1a(5)]

The concrete floors in each high bay storage cell are canted toward individual secondary containment trenches within those cells. These trenches are isolated from each other in order to prevent interaction.

1 reactions or offsite migration of spilled materials This provides protection even during simultaneous
2 spills

3 The floors in the high bay area are also canted toward a separate sump system which is sealed with epoxy
4 and blocked to prevent drainage Drums stored in this area are also stored on pallets to prevent contact
5 with spilled material in the event of a release Segregated storage areas for incompatible materials have
6 been set up in the high bay storage area to prevent commingling of spilled waste during a catastrophic
7 (multi drum) spill incident Each area has its own containment trench separated from other trenches with
8 concrete and epoxy

9 The flammable liquids bulking module along with its purpose of providing a ventilated area for bulking
10 of compatible hydrocarbon waste is used as an independent storage cell The walls of the module
11 provide secondary containment which have been sealed at the floor joint by use of grout coated with
12 epoxy paint

13 For protection of the basement RMW storage area curbing/diking is provided to prevent migration
14 Drums are stored on pallets to prevent container contact with spilled materials and drip pans are provided
15 to segregate RMW by dangerous waste characteristic as described in Section 4 1 1 6 11 This area has no
16 drainage

17 Flammable RMW is stored within its own secondary containment devices The description and capacity
18 of the flammable RMW storage area is provided in Section 4 1 1 6 11

19 **4 1 1 6 Containment System Capacity [D 1a(6)]**

20 Secondary containment is provided for all dangerous waste stored at the 305 B Storage Facility Storage
21 limits for all chemicals are listed in Table 4 1 (1988 Uniform Building Code) All floors in the high bay
22 area are sloped toward sumps which have no drains and are covered with grating to prevent safety
23 hazards In addition all floors in the high bay area are coated with an epoxy based coating as described
24 in Section 4 1 1 4 Inspection of the containment system to maintain integrity is described in Section 6 2
25 Individual secondary containment systems are configured as follows

26 **4 1 1 6 1 Acids and Oxidizers Cell** The acids and oxidizers cell (cell 1) is located at the northwest
27 corner of the 305 B Storage Facility high bay floor The cell is constructed of epoxy painted concrete
28 block walls 4 foot high and incorporates a 1 foot deep sump at the west end of the cell Six cabinets open
29 shelving and a large container storage area are provided within the cell to allow storage of various sizes
30 of containers The secondary containment volume of the individual sump for this cell is 67 gallons and
31 the total containment volume of the cell is 774 gallons A diagram of the cell is provided in Figures 4 1

32 **4 1 1 6 2 Poisons and Class 9 Cell** The poisons and Class 9 cell (cell 2) is located just south of the acids
33 and oxidizers cell along the west wall of the high bay This cell is also constructed of epoxy painted
34 concrete block walls 4 foot high and incorporates a 1 foot deep sump along its west end Six storage
35 cabinets and several sets of open shelving are positioned in the cell to allow storage of various sizes of
36 containers The northeast corner of the cell is sectioned off with a 6 inch spill retention berm to allow
37 PCB storage for disposal complying with 40 CFR 761 65(b) The secondary containment volume of the
38 individual sump for this cell is 117 gallons and the total containment volume of the cell is 782 gallons A
39 diagram of this cell is provided in Figure 4 2

4 1 1 6 3 Alkaline Washington State Criteria Waste Organic Peroxides and Non Regulated Waste Cell The alkaline Washington State Criteria waste and non regulated waste cell (cell 3) is located South of the poisons and Class 9 cell on the west wall of the high bay area This cell is also constructed of epoxy painted concrete block walls 4ft high and incorporates a 1 foot deep sump along its west end Four storage cabinets 3 sets of open shelving and 1 explosion proof refrigerator are positioned in the cell to allow storage of various sizes of containers The secondary containment volume of the individual sump for this cell is 137 gallons and total containment volume of the cell is 764 gallons A diagram of this cell is provided in Figure 4 3

4 1 1 6 4 Flammable Cell. The flammable-cell (cell 4) is located south of the alkaline Washington State Criteria waste and non regulated waste cell As with the other three cells described above this cell is constructed of epoxy painted concrete block walls 4 feet high and incorporates a 1 foot deep sump along its west end The secondary containment volume of the individual sump for this cell is 119 gallons and total containment volume of the cell is 687 gallons A diagram of this cell is provided in Figure 4-4

Ignitable organic waste materials are stored in this cell that also exhibits the characteristics of corrosivity toxicity as well as reactivity Three Factory Mutual approved flammable liquid storage cabinets are utilized for storage of various classes of flammable liquids as defined by the UFC The capacities of the various cabinets are shown in Table 4 2 The following cabinets also are used for storage in this cell one for combustibles one for aerosols two for flammable solids and one for overflow from one of the other cabinets

Total ignitable Waste Storage capacity of the 305 B Storage Facility highbay including the organics cell Cell 5 Ignitable drum storage area and highbay storage area is limited by the following UBC restrictions for Class B occupancy

Class 1A flammable liquids 120 gallons

Class 1B flammable liquids 240 gallons

Class 1C flammable liquids 360 gallons

Maximum Class 1A 1B and 1C at any one time 480 gallons

Maximum Class 1A 1B and 1C stored in Cell 8 self contained storage module for flammable liquids is 240 gallons

Class 2 combustible liquids 480 gallons

Class 3A combustible liquids 1320 gallons

Combustible fibers loose 100 cubic feet

Combustible fibers baled 1000 cubic feet

Flammable gases in any one cylinder 3000 cubic feet

Liquefied flammable gases 60 gallons

4 1 1 6 5 Flammable Liquids Bulking Module The flammable liquids bulking module (cell 5) along with its purpose of providing a ventilated area for bulking of compatible ignitable waste is used as an independent storage cell The walls of the module provide secondary containment which have been sealed at the floor joint by use of grout coated with epoxy paint Flammable gases in cylinders liquefied flammable gases and oxidizing gases will be stored in the bulking module

Nontransient storage of flammable liquids in the module is 55 gallons A diagram of the module is provided in Figure 4 5

4 1 1 6 5 a. Flammable Liquids Storage Module The flammable liquid storage module is a self contained storage module (cell 8) that allows additional storage space for flammable waste The

flammable liquid storage module is located along the south wall and is connected to the buildings fire suppression system. The flammable liquid storage module has a 2 hour fire rated containment system so that according to the UFC an unlimited capacity is allowed. However the flammable waste storage capacity of the flammable liquid storage module is limited by the 240-gallon capacity of the module's secondary containment system. No more than 240 gallons of any combination of flammable liquid classes will be stored in the module. This flammable waste storage capacity is in addition to the flammable storage limits for the highbay. A diagram showing the module location in the highbay is provided in Figure 4 7.

4 1 1 6 6 Ignitable Waste Drum Storage Area. An additional section of the high bay (cell 8) has been dedicated to storage of drum quantities of ignitable waste before offsite shipment. The area is bordered on the north and south sides by angle iron (3½in x 6in) bolted to the floor (refer to Plate 2 Appendix 4A for detail) and sealed to provide secondary containment. The area is approximately 15ft x 7ft. To further enhance containment and to allow greater storage capacity the drums stored in this area are stored in flammable liquid drum storage cabinets.

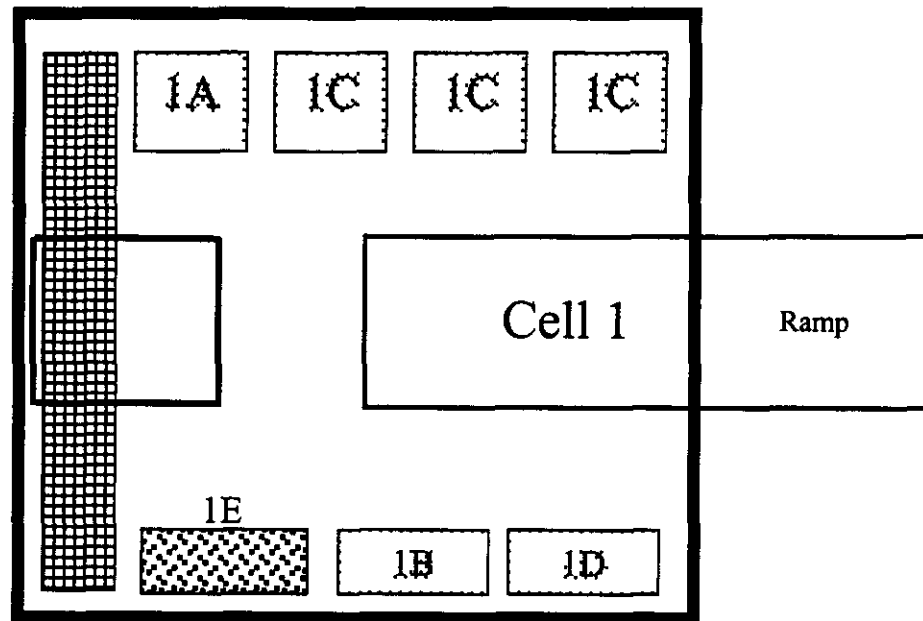
Sump containment capacity of this area is approximately 224 gallons and total containment capacity is approximately 431 gallons. Maximum storage in this area is approximately six 55 gallon drums and 12 five gallon drums. A diagram of this area is included in Figure 4 6. Additional ignitable waste storage is provided for in cell 4 organics cell and the in the Highbay storage area. The high bay storage area has five additional flammable liquid drum storage cabinets located along the west side of the high bay (refer to Figure 4 7). All of this ignitable waste storage is provided for utilizing flammable liquid storage cabinets for added safety.

4 1 1 6 7 Universal and Recycling Waste Storage Area. A second section of the high bay (cell 12) has been dedicated to storage of drum quantities of universal and recycling waste before shipment. The area is 10ft x 7ft in size. All material in this area is stored in DOT approved containers and is stored on pallets to prevent contact with spilled waste in the event of an incident.

Sump containment capacity in this area is approximately 55 gallons and total containment capacity is approximately 255 gallons. Maximum storage in this area will be eight 55 gallon drums. A diagram of this area is included in Figure 4 6.

4 1 1 6 8 Acid Waste Drum Storage Area. A third section of the high bay (cell 13) has been designated for storage of drum quantities of acid waste before offsite shipment. The area is approximately 10ft x 10 ft. Waste drums stored in this area are stored on pallets to prevent contact with spilled waste in the event of an incident. Bulk drums containing acids with oxidizers as a secondary hazard will be placed in the cell 1 drum area to prevent any possibility of a reaction with surrounding hazards in the high bay drum storage area. A diagram of this area is included in Figure 4 6.

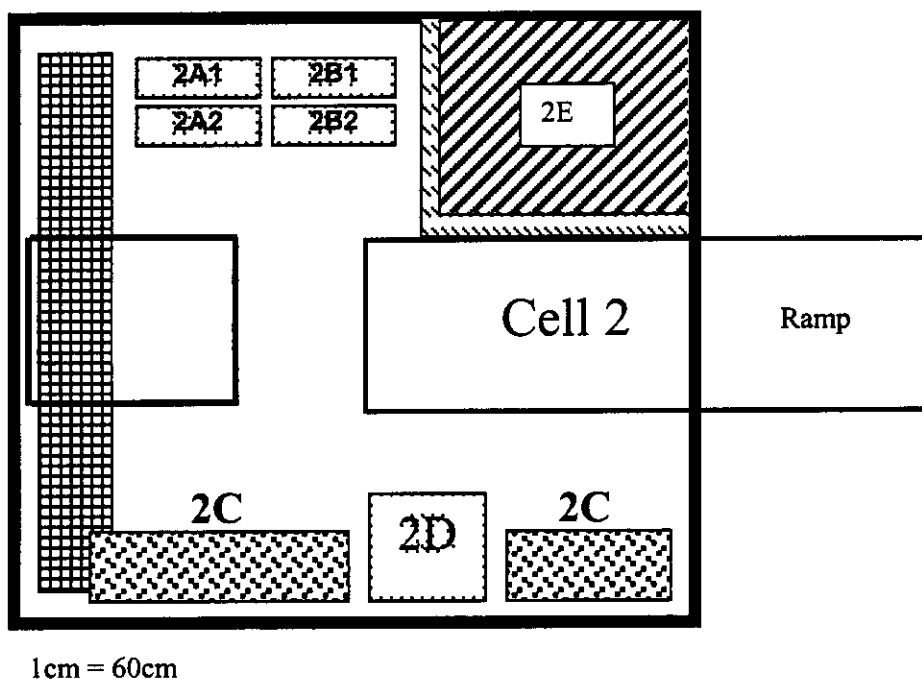
Figure 4 1 Acids and Oxidizers Cell



Legend

- 1A Liquid Oxidizers (Medium Cabinet)
- 1B Solid Oxidizers (Small Cabinet)
- 1C Inorganic Acids (Medium Cabinet)
- 1D Organic Acids (corrosive) (Small Cabinet)
- 1E Mercury/Corrosive Solids (Small Shelf)
- 15 24cm W x 127cm H epoxy coated concrete block wall
- Secondary Containment Trench
- Drum and Carboy Storage Area

Figure 4 2 Poisons and Class 9 Cell



Legend

2A1 Poisons Acidic (P G II and P G III) (Small Cabinet)

2A2 Poisons Neutral/Basic (P G II and P G III) (Small Cabinet)

2B1 Poisons Neutral/Basic (P G I) (Small Cabinet)

2B2 Poisons Acidic (P G I) (Small Cabinet)

2C Class 9 (nonreactive) (Large and Small Shelf)

2D Class 9 (reactives) (Large Cabinet)

2E PCB s

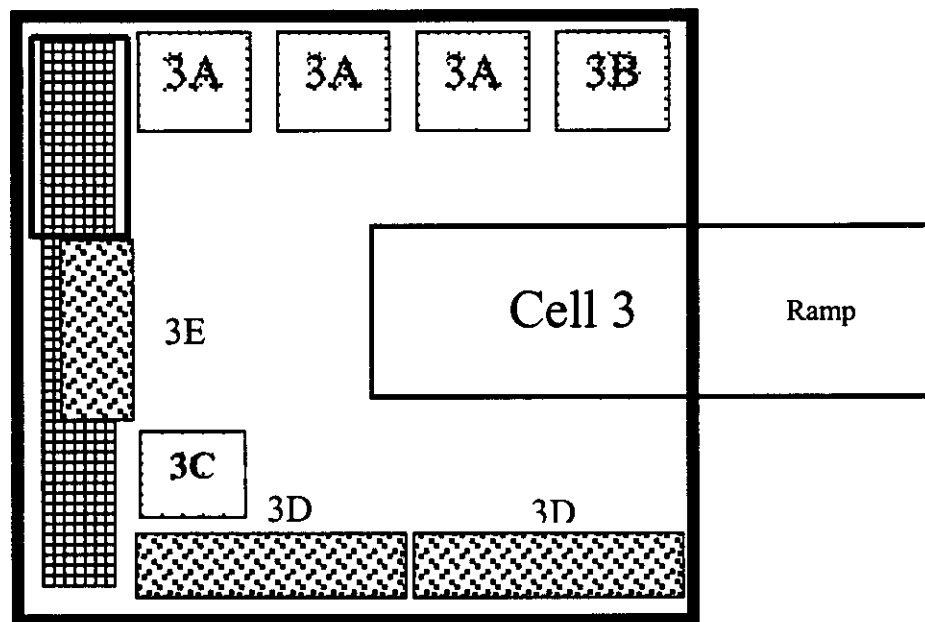
15 2cm W x 127cm H epoxy coated concrete block wall

Secondary Containment Trench

313 69cm L x 8 89cm W x 15 24 cm H epoxy coated angle iron sealed to the floor

Drum and Carboy Storage Area

Figure 4 3 Alkaline, Washington State Criteria Waste Organic Peroxides and Non Regulated Waste Cell



1 cm = 60 cm

Legend

- 3A Alkaline (liquids and solids) (Medium Cabinet)
- 3B Alkaline/Oxidizers (Small Cabinet)
- 3C Organic Peroxides and temperature sensitive (refrigerator)
- 3D Washington State Criteria Waste (2 Large Shelves)
- 3E Non Regulated Liquids/Solids (Small Shelf)
- 15 24cm W x 127CM H epoxy coated concrete block wall
- Secondary Containment Trench
- Drum and Carboy Storage Area

4 1 1 6 9 Alkaline Waste Drum Storage Area A fourth section of the high bay (cell 14) has been designated for storage of drum quantities of alkaline waste before offsite shipment. The area is approximately 22ft x 15ft. Waste drums stored in this area are stored on pallets to prevent contact with spilled waste in the event of an incident. Sump containment capacity in this area is approximately 110 gallons and total containment capacity is approximately 380 gallons. Maximum storage in this area is thirty two 55 gallon drums. The location of the area is shown on the High Bay Storage Area diagram Figure 4 7.

4 1 1 6 10 High Bay Storage Area The high bay storage area along with its partitioned areas mentioned above is itself a secondary containment area for loading, unloading, and storage of dangerous waste. The high bay floor is crowned in the center and sloped at 1/4 inch per foot with drainage to sumps on the east and west sides of the unit. Sump locations are indicated in Figure 4 7.

Due to space limitations in the individual cells and for ease of mechanical handling, the high bay floor is typically used for storage of nonradioactive chemicals in drums (refer to Figure 4 7).

The high bay floor is also used to store labpacks and bulked waste containers before offsite shipment to licensed treatment, disposal, or recycling facilities. Generally, only corrosives, oxidizers, toxic organic solvent mixtures (typically halogenated solvents), antifreeze mixtures, contaminated water which is toxic, dangerous waste, nonliquid waste, ORMs, or state only dangerous waste materials are stored in the high bay storage area.

If waste incompatible with the foregoing are stored in the high bay storage area, they are kept separated by at least ten feet of distance and stored in individual drip pans for segregation in case of simultaneous accidental spillage. Compatibility of the materials is determined before acceptance in accordance with Section 3 2.

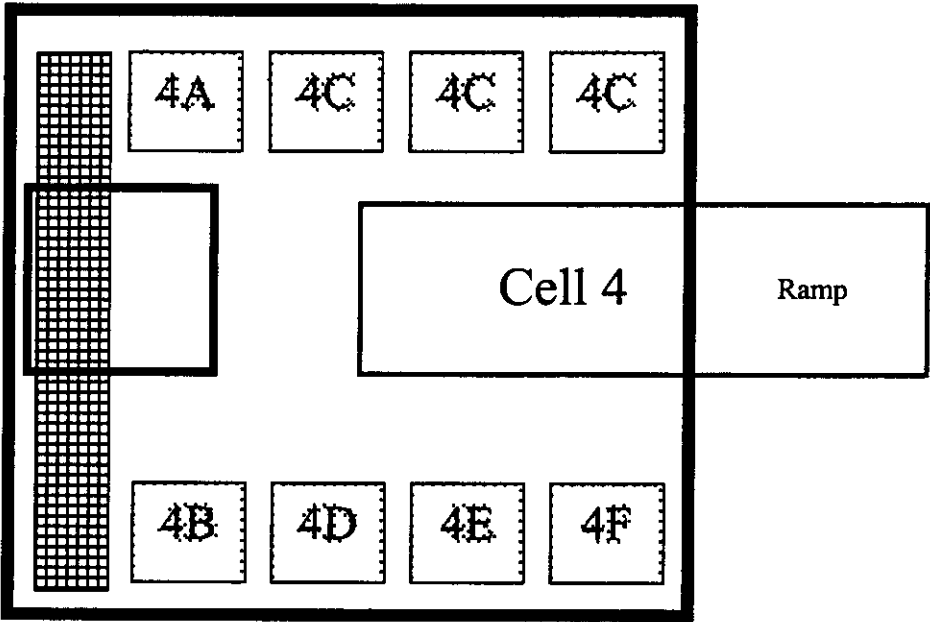
The secondary containment volume of the sumps in the high bay storage area, exclusive of the sumps within individual areas described above, is 565 gallons. Maximum storage in the high bay storage area is thus approximately 5650 gallons (102 drums). The high bay storage is also governed by the building occupancy maximums of Table 4 1, which includes the inventory of the individual storage cells described above. In order to provide additional separation from spilled liquids and for ease of handling, all drums stored on the high bay floor are stored on pallets. A diagram of this cell is provided in Figure 4 7.

4 1 1 6 11 Flammable RMW Storage Area Due to UBC restrictions, flammable radioactive mixed waste cannot be stored in the basement of 305 B Storage Facility with the other radioactive mixed waste. The flammable RMW received by 305 B Storage Facility for storage before disposal is stored in a separate area above grade in the east portion of the building in a 7ft x 7ft x 7ft flammable liquid storage module (cell 7). The module is Factory Mutual approved and has four hour fire rated walls and doors. The module has a self contained internal dry chemical fire suppressant system. The module has a 90 gallon polyethylene coated sump. The module is lag bolted to the concrete floor in the flammable RMW storage area indicated in Figure 4 8. The module has a storage capacity of four 55 gallon drums or up to 250 gallons of total capacity of all containers stored, whichever is greater. This storage area meets the requirements of a one year PCB storage area as defined in 40 CFR 761 65, so flammable mixed waste, also regulated as PCB waste, may be stored in this location. A diagram of this cell is provided in Figure 4 8.

4 1 1 6 12 RMW Storage Area Radioactive mixed waste that is not flammable per UFC (i.e., flash point above 100 F) is stored in a special area in the basement of 305 B Storage Facility. For additional segregation capability, there are eight small chemical storage cabinets and four 62in x 62in x 6in (157cm x 157cm x 15cm) stainless steel container pans with an approximate volume of 91 gallons (346 liters). The total area within the curbing is 1246 gallons (4716 liters). The containment pans are mounted to the floor or wall of the cell to provide segregated storage for potentially incompatible mixed

- 1 waste streams A diagram of the RMW storage cell secondary containment pan installation is provided in
2 Figure 4 10 Drums stored in this area are stored on pallets to prevent potential contact with spilled waste
3 in containment during an emergency A diagram of this area is provided in Figure 4 9
- 4 In normal use the storage capacity of this area is limited by the radionuclide limits imposed by the DOE
5 for low inventory facilities These limitations are defined in DOE STD 1027 92 Hazard
6 Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480 23 Nuclear
7 Safety Analysis Reports and are included in the radiation work permit for the mixed waste storage area
- 8 **4 1 1 6 13 Explosives Storage Area.** Due to UBC restrictions waste classified as explosive by DOT
9 regulations are stored in a 3ft x 3ft x 3ft explosives magazine with an 8 cubic foot interior outside cell 1
10 The magazine is constructed of steel and certified to have been fabricated per Institute of Makers of
11 Explosives (IME) SLP22 type 2 day box requirements No more than 1 pound of explosives is stored in
12 the magazine at one time The location of the magazine is indicated in Figure 4 7
- 13 **4 1 1 7 Control of Run On [D 1a(7)]**
- 14 The 305 B Storage Facility was designed to eliminate the likelihood of on site or for that matter off site
15 migration via run on and run off The facility is completely enclosed (i e complete roof and
16 WA 1981)no open walls) and has been constructed upon a foundation so that precipitation cannot cause
17 either run on or run off problems

Figure 4-4 Organics Cell



Legend

- 4A Combustible Liquids (Large Cabinet)
- 4B Aerosols (Large Cabinet)
- 4C Flammable Liquids (Large Cabinet)
- 4D Flammable Solids (Dangerous When Wet) (Large Cabinet)
- 4E Flammable Solids (with water Spontaneously Combustible) (Large Cabinet)
- 4F Floating Cabinet (Large Cabinet)

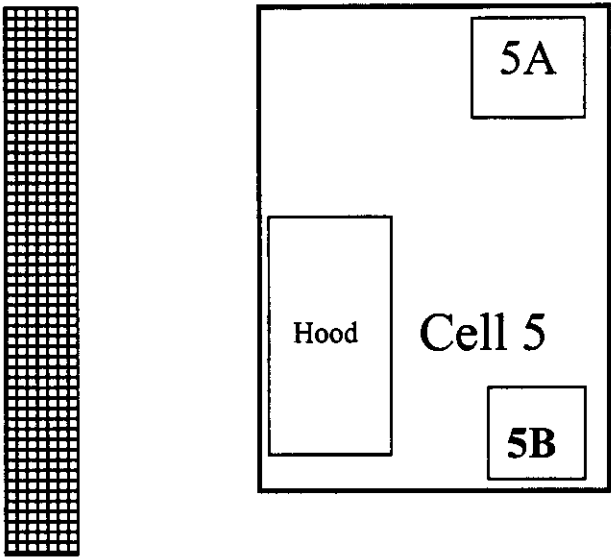
1524 cm W x 127 H epoxy coated concrete block wall

Secondary Containment Trench

Drum and Carboy Storage Area

Figure 4 5 Flammable Liquid Bulking Module and Compressed Gases (Cell 5)

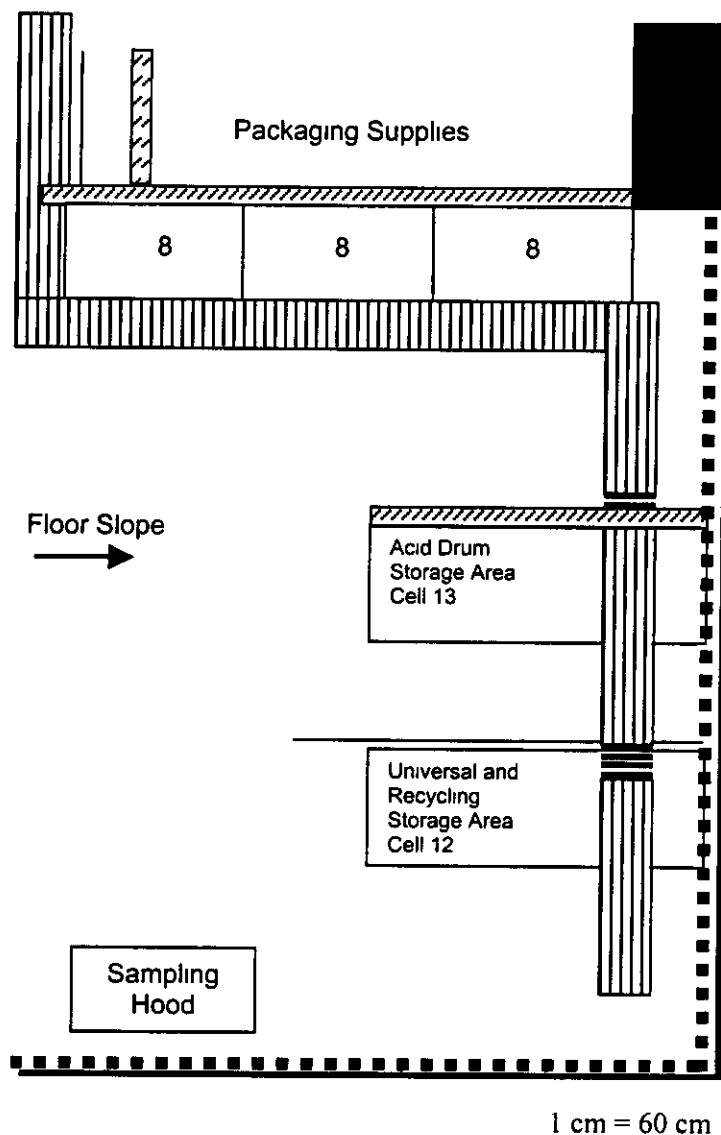
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Legend

- 5A Compressed Gases
- 5B Oxidizing Gases
- Hood – Walk in flammable liquid bulking 1 drum maximum
- Secondary Containment Trench

Figure 4 6 Segregated High Bay Drum Storage Areas



Legend









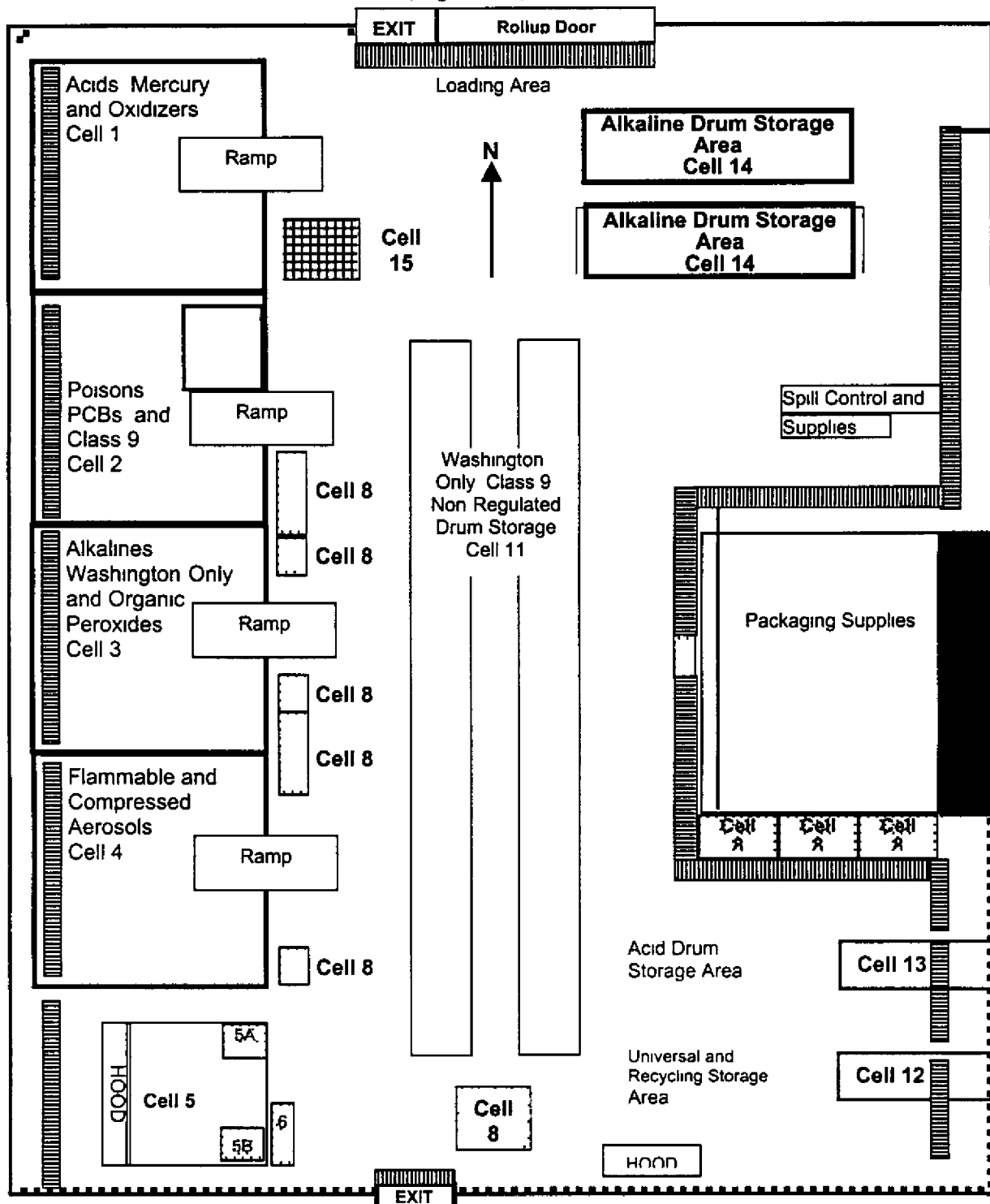
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|---|--|---|--|
|  | Secondary Containment Trench |  | Concrete Ledge |
|  | Palletized Drum Storage |  | Concrete Curb |
|  | Sump Blockages
(exopy coated concrete) |  | Large Drum Cabinet |
|  | 360 68cm l x 317 5cm W x 121 92cm H
stainless steel splash wall |  | 313 69cm l x 8 89cm W x 15 24cm H epoxy
coated angle iron sealed to the floor |

Figure 4 7 High Bay Storage Area

(Page 1 of 2)



Legend On next page

Scale 1cm = 120 cm

Figure 4 7 High Bay Storage Area
(Page 2 of 2)

Legend



Secondary Containment Trench



Palletized Drum Storage



360 68 cm L x 3 175 W x 10 16cm Stainless Steel Splash wall

313 69cm L x 8 89cm W x 15 24cm H epoxy coated angle iron sealed to the floor



Concrete Ledge



22 86cm overhang from concrete wall



Asbestos Storage (Small Cabinet)



Small Drum Cabinet (flammable waste storage)



Large Drum Cabinet (flammable waste storage)



Flammable Storage Module

Cell 5

Flammable Liquid Building Module and Compressed Gases



Compressed Gases (Large Cabinet)

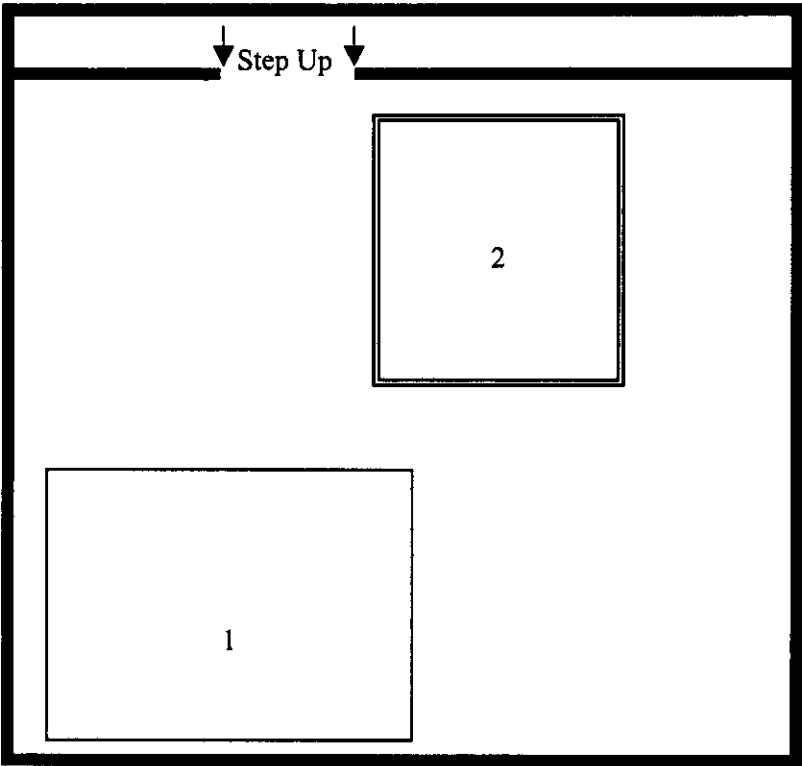


Oxidizing Gases (6 985cm w X 45 72cm D x 88cm H)



Explosives Magazine

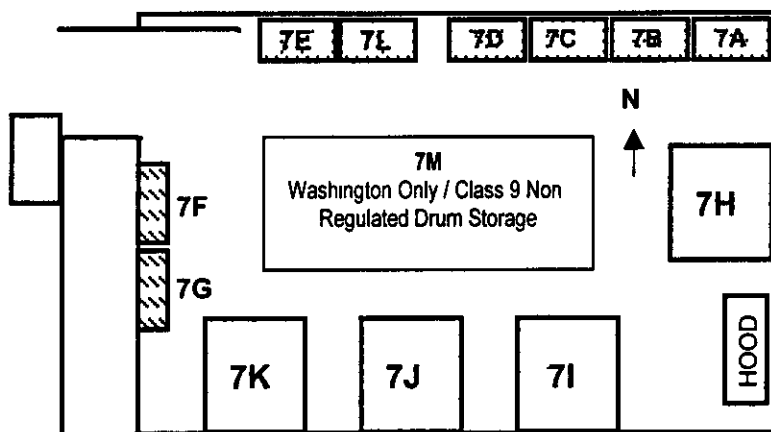
Figure 4 8 Flammable Radioactive Mixed Waste Storage Area



Legend

- 1 Flammable RMW Storage Module
 - 2 Removable hatch cover for basement access (surrounded by railing)
- All PCB waste stored in Cell 9 shall be stored in trays or drum overpacks that meet all the requirements of 40 CFR 761 65(b)

Figure 4 9 Radioactive Mixed Waste Storage

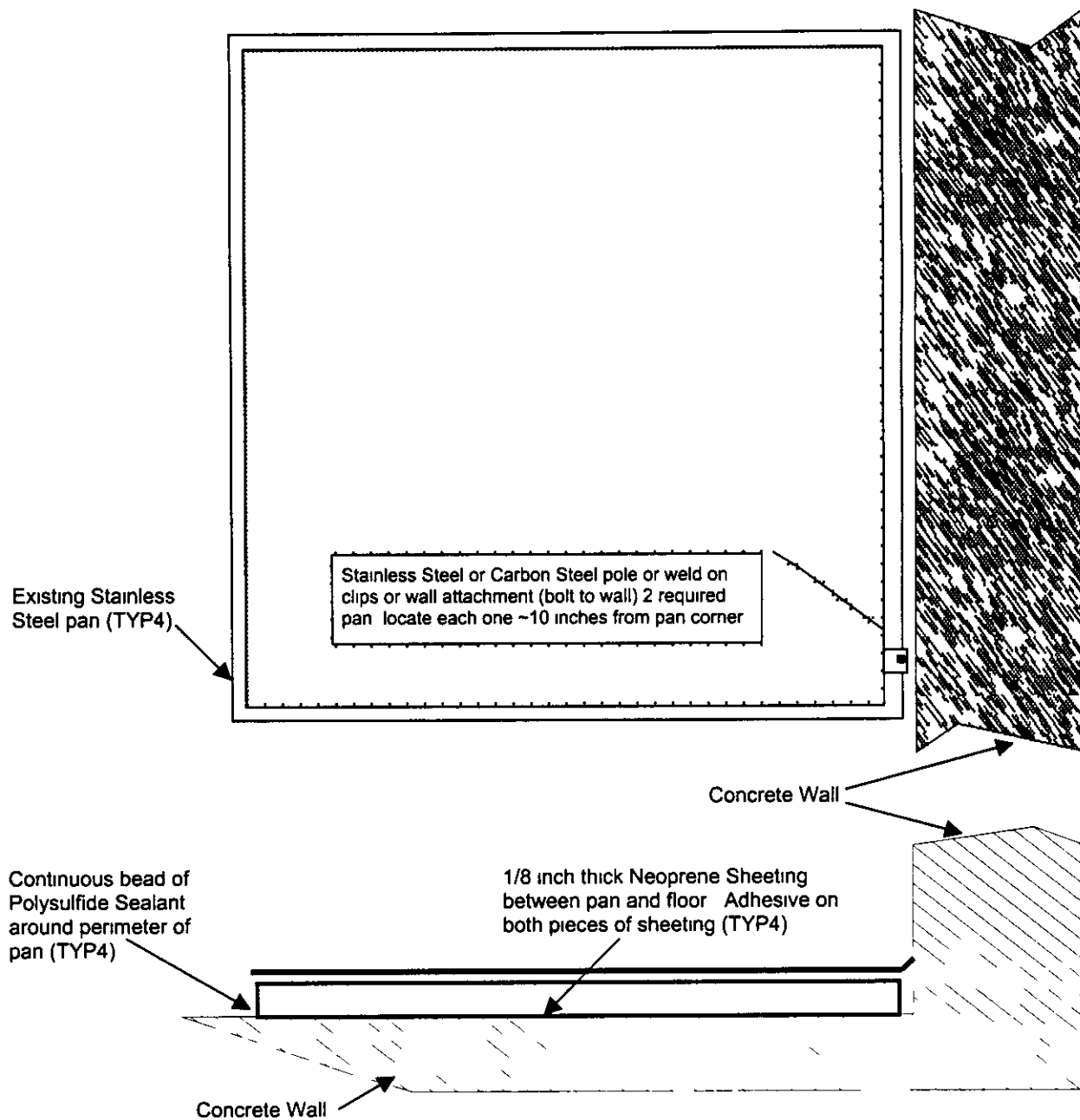


Cell 7 Legend

7A	Poisons
7B	Oxidizers
7C	Class 9/Combustible
7D	Washington Only/Combustible
7E	Flammable Solids
7F	Corrosive Base/Combustible
7G	Corrosive Acid/Combustible
7H	Corrosive/PCB s/Combustible
7I	Corrosive Acid/PCB s/Combustible
7J	PCB s/Combustible
7K	Washington Only/Class 9/PCB s/Combustible
7L	Non Regulated/Combustible
7M	Washington State Waste/ Class 9/ Non Regulated/Combustible/Compatibles
HOOD	121 9cm L x 54 2cm D x 228 6cm H

All PCB waste stored in Cell 7 will be segregated according to chemical compatibility and stored in any of the four stainless steel container pans complying with 40 CFR 761 65(b)

Figure 4 10 RMW Storage Cell Containment Pan Installation



PAN TOP & SIDE VIEW

Non Flammable RMW Cell Secondary Containment Pan Installation

1 **Table 4 1 Exempt Amounts of Hazardous Materials Liquids & Chemicals Presenting a Physical Hazard**

BASIC QUANTITIES PER CONTROL AREA										
When two units are given values within parentheses are in cubic feet (Cu Ft) or pounds (Lbs)										
CONDITION		STORAGE ²			USE ² -CLOSED SYSTEMS			USE ² -OPEN SYSTEMS		
MATERIAL	CLASS	Solid Lbs (Cu Ft)	Liquid Gallons (Lbs)	Gas (Cu Ft)	Solid Lbs (Cu Ft)	Liquid Gallons (Lbs)	Gas (Cu Ft)	Solid Lbs (Cu Ft)	Liquid Gallons (Lbs)	Gas (Cu Ft)
1 1 Combustible liquid ³	II	-	120 ⁵	-	-	120	-	-	30	-
	III A	-	330 ⁵	-	-	330	-	-	80	-
	III B	-	13 200 ⁵	-	-	13 200	-	-	3 300 ⁶	-
1 2 Combustible dust lbs /1000 Cu Ft		1	-	-	1	-	-	1	-	-
1 3 Combustible fiber (loose)		(100)	-	-	(100)	-	-	(20)	-	-
(baled)		(1 000)	-	-	(1 000)	-	-	(200)	-	-
1 4 Cryogenic flammable or oxidizing			45	-	-	45	-	-	10	-
2 1 Explosives		1 ⁸	(1)	-	/	(/) ⁸	-	/ ⁸	(/)	-
3 1 Flammable solid		125 ⁵	-	-	25	-	-	25	-	-
3 2 Flammable gas (gaseous)		-	-	750	-	-	750 ⁵	-	-	-
(liquefied)		-	15 ⁵	-	-	-	-	-	-	-
3 1 Flammable liquid ³		-	30 ⁵	-	-	30	-	-	10	-
		-	60	-	-	60	-	-	15	-
		-	90	-	-	90	-	-	20	-
Combination I A I B I C		-	120 ⁵	-	-	120 ⁴	-	-	30	-
4 1 Organic peroxide unclassified detonable		1	(1) ⁵	-	/	(/)	-	/	(/)	-
4 2 Organic peroxide	I	5 ⁵	(5)	-	(1)	(1)	-	1	1	-
	II	50 ⁵	(50)	-	50	(50)	-	10	(10)	-
	III	125 ⁵	(125)	-	125	(125) ⁵	-	25	(25)	-
	IV	500	(500)	-	500	(500)	-	100	(100)	-
	V	N L	N L	-	N L	N L	-	N L	N L	-
4 3 Oxidizer	4	1	(1) ⁵	-	/ ⁸	(/)	-	/	(/)	-
	3	10	(10) ⁵	-	2	(2)	-	2	(2)	-
	2	250 ^{4 5}	(250) ⁵	-	250	(250)	-	50	(50)	-
	1	1 000 ^{4 5}	(1 00)	-	1 000	(1 000)	-	200	(200)	-
4 1 Oxidizer—Gas (gaseous)		-	-	1 500	-	-	1 500	-	-	-
(liquefied)		-	15	-	-	15	-	-	-	-
5 1 Pyrophoric		4 ^{5 8}	(4)	50 ^{5 8}	1	(1)	10	0	0	0
6 1 Unstable (reactive)	4	1 ⁵	(1)	10 ^{5 8}	/	(/)	2 ⁵	/	(/)	0
	3	5	(5)	50 ⁵	1	(1)	10	1	1	0
	2	50	(50)	250	50	(50)	250	10	(10)	0
	1	125	(125)	750	125	(125)	750	25	(25)	0
7 1 Water (reactive)	3	5	(5)	-	5	(5)	-	1	(1)	-
	2	50	(50)	-	50	(50)	-	10	(10)	-
	1	125	(125)	-	125	(125)	-	25	(25)	-

Control area is a space bounded by not less than a one hour fire resistive occupancy separation within which the exempted amounts of hazardous materials may be stored dispensed handled or used. The number of control areas within a building used for retail and wholesale stores shall not exceed two. The number of control areas in buildings with other uses shall not exceed four.

The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters. The quantities of medicines foodstuffs and cosmetics containing not more than 50 percent of volume of water miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

Quantities may be increased 100 percent in sprinklered buildings. When Footnote 5 also applies the increase for both footnotes may be applied. Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code. When Footnote 4 also applies the increase for both may be applied.

The quantities permitted in a sprinklered building are not limited.

A dust explosion is considered to exist if 1 pound or more of combustible dust per 1 000 cubic feet of volume is normally in suspension on or on horizontal surfaces inside buildings or equipment and which could be put into suspension by an accident sudden force or small explosion.

⁸ Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

One pound of black sporting powder and 20 pounds of smokeless powder are permitted in sprinklered or unsprinklered buildings.

Containing not more than the exempt amounts of Class I A Class I B Class I C flammable liquids.

Table 4 1 Exempt Amounts of Hazardous Materials Liquids & Chemicals Presenting a Physical Hazard
(cont)

MAXIMUM QUANTITIES PER CONTROL AREA ²
When two units are given values within parentheses are in pounds (Lbs)

MATERIAL ³	STORAGE			USE ³ -CLOSED SYSTEMS			USE ³ -OPEN SYSTEMS		
	Solid (Lbs) ^{5 6}	Liquid Gallons (Lbs) ^{5 6}	Gas (Cu Ft) ⁵	Solid (Lbs) ⁵	Liquid Gallons (Lbs) ⁵	Gas (Cu Ft)	Solid (Lbs) ⁵	Liquid Gallons (Lbs) ⁵	Gas (Cu Ft)
1 Corrosives	5 000	500	650	5 000	500	650	1 000	100	-
2 Highly Toxics	1	(1)	20 ⁸	1	(1)	20	/	(/)	-
3 Irritants	5 000	500	650	5 000	500	650 ⁵	1 000	100	-
4 Sensitizers	5 000	500	650	5 000	500	650 ⁵	1 000	100	-
5 Other Health Hazards	5 000	500	650	5 000	500	650	1 000	100	-

¹ Control area is a space bounded by not less than one hour fire resistive occupancy separation within which the exempted amounts of hazardous materials may be stored Dispensed handled or used The number of control areas within retail and wholesale stores shall not exceed two and the number of control areas in other uses shall not exceed four

² The quantities of medicines foodstuffs and cosmetics containing not more than 50 percent by volume of water miscible liquids and with the remainder of the solutions not being flammable in retail sales uses are unlimited when packaged in individual containers not exceeding 4 liters

³ The aggregate quantity in use and storage shall not exceed the quantity listed for storage

⁴ For carcinogenic and radioactive materials see the Fire Code

⁵ Quantities may be increased 100 percent in sprinklered buildings When Footnote 6 also applies the increase for both footnotes may be applied

⁶ Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code When Footnote 5 also applies the increase for both footnotes may be applied

⁷ For special provisions see the Fire Code

⁸ Permitted only when stored in approved exhausted gas cabinets exhausted enclosures or fume hoods

4 1 1 8 Removal of Liquids from Containment System [D 1a(8)]

Upon discovery of liquid accumulation in the containment resulting from a spill or other release the BED must be contacted in accordance with the 305 B Storage Facility contingency plan (Chapter 7) The BED may determine that the contingency plan should be implemented If the incident is minor and the BED approves removal of the liquids will commence immediately following a safety evaluation Appropriate protective clothing and respiratory protection will be worn during removal activities a PNNL industrial hygienist may be contacted to determine appropriate personnel protection requirements and any other safety requirements that may be required such as chemical testing or air monitoring In addition ventilation of the spill impacted area may be performed if determined to be safe and if appropriate monitoring of the air discharge(s) is performed

Spills are normally contained either within the storage cabinet within the cell or within a secondary containment trench or berm as described in Section 4 1 1 5 In any case spilled material will be recovered to the extent possible by pumping recovered liquids with a pump made of nonreactive materials (either steel or PVC) to intact containers selected in accordance with the container selection procedure in Section 4 1 1 1 Nonrecoverable liquids will be absorbed with an appropriate absorbent (after appropriate chemical reaction to neutralize reactivity in the case of reactive waste or neutralization in the case of corrosive materials) refer to Table 6 2 for list of available materials for this purpose The absorbent material will then be recovered and placed in a container selected in accordance with Section 4 1 1 1 using nonsparking shovels in the case of ignitable waste The floor cabinets and any other impacted containers may be cleaned with dry rags soap and water or a compatible solvent if necessary to remove external contamination Contaminated rags and other cleanup material will be disposed of in an appropriate manner Verification sampling shall be carried out in accordance with Section 1 1 4 4 (Methods for sampling and testing to demonstrate success of decontamination)

4 1 2 Containers Without Free Liquid That Do Not Exhibit Ignitability or Reactivity [D 1b]

This section is not applicable to 305 B Storage Facility because the storage area is used to store containers both with and without free liquids 305 B Storage Facility does not meet the conditions for reduced requirements for storing only containers without free liquid therefore the facility is subject to the full requirements for containment

4 2 PROTECTION OF EXTREMELY HAZARDOUS WASTE IN CONTAINERS [D 2]

All waste are stored inside of 305 B Storage Facility within the storage areas described in Section 4 1 1 6 These locations are completely enclosed from the weather as described in Section 4 1 1 7 meeting the requirements of WAC 173 303 630(7)(d)

4 3 PREVENTION OF REACTION OF IGNITABLE REACTIVE AND INCOMPATIBLE WASTE IN CONTAINERS [D 3]

The following sections provide information on the management of ignitable reactive and incompatible waste in containers Additional information on this subject can be found in Section 6 5

4 3 1 Management of Ignitable or Reactive Waste in Containers [D 3a]

Ignitable and reactive waste are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988) Containers of ignitable and reactive waste are stored in individual flammable material storage cabinets within the storage cells

1 **4 3 2 Management of Incompatible Waste in Containers [D 3b]**

2 Section 6 5 2 describes procedures used at 305 B Storage Facility to determine the compatibility of
3 dangerous waste so that incompatible waste are not stored together Chemical waste stored in
4 305 B Storage Facility are separated by compatibility chemical makeup and hazard class and stored in
5 areas having appropriate secondary containment as described in Section 4 1 1 6

6 As shown in Figures 4 2 through 4 11 each storage area has individual storage configurations secondary
7 containment structures are provided to assure that incompatible materials will not commingle if spilled
8 Further segregation is provided by chemical storage cabinets located throughout the facility in various
9 areas as shown in Figures 4 1 through 4 10 Cabinet types are noted in those figures and capacities
10 described in Table 4 2 Incompatible waste are never placed in the same container or in unwashed
11 containers that previously held incompatible waste

12 Compliance with WAC 173 303 395(1)(b) is assured utilizing the reactivity groupings given in *A Method*
13 *for Determining the Compatibility of Hazardous Waste* (EPA 1980) Use of this system and the
14 procedure for handling ignitable or reactive waste and mixing of incompatible waste as described in
15 Section 6 5 2 fulfills the requirements of WAC 173 303 395(1)(c) Tank System [D 3c]

16 This section is not applicable to the 305 B Storage Facility because waste are not managed in tanks

17 **4 3 3 Waste Piles [D 3d]**

18 This section is not applicable to the 305 B Storage Facility because waste are not managed in waste piles

19 **4 3 4 Surface Impoundments [D 3e]**

20 This section is not applicable to the 305 B Storage Facility because waste are not placed in surface
21 impoundments

22 **4 3 5 Incinerators [D 3f]**

23 This section is not applicable to the 305 B Storage Facility because waste are not incinerated

24 **4 3 6 Landfills [D 3g]**

25 This section is not applicable to the 305 B Storage Facility because waste are not placed in landfills

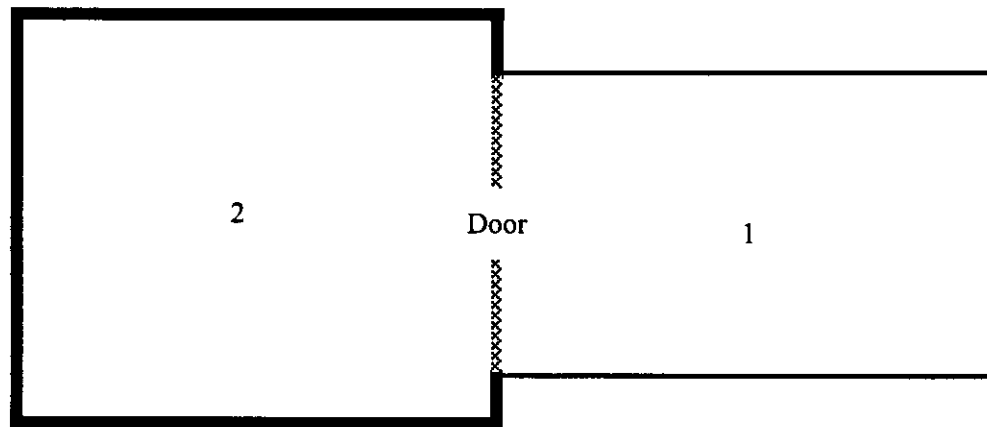
26 **4 3 7 Land Treatment [D 3h]**

27 This section is not applicable to the 305 B Storage Facility because waste are not treated in land treatment
28 units

Table 4 2 Storage Devices Used at the 305 B Storage Facility

Storage Device	Typical Use	External Dimensions (in)	Capacity (gal/ft ³)
Small Cabinet	Storage of containers (5 gallons or less capacity)	43w x 18d x 65h	50 max
Medium Cabinet	Storage of containers (18 93 liter [5 gallons] or less capacity)	31w x 31d x 65h	60 max
Large Cabinet	Storage of containers (5 gallons or less capacity)	34w x 34d x 65h	80 max
Small Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	34w x 34d x 65h	65 max
Large Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	59w x 34d x 65h	130 max
Small Shelving	Storage of containers (5 gallons or less capacity)	47w x 18d x 62h	65 max
Large Shelving	Storage of containers (5 gallons or less capacity)	72w x 18d x 62h	100 max
Flammable Storage Module	18 93 liter [5 gallons] to 208 18 liter [55 gallons] capacity	78w x 73d x 100h	240 max
Refrigerator/ Freezer	Storage of containers of organic peroxides and other temperature sensitive waste	34w x 29d x 67h	25 Cu Ft
Explosives Magazine	Storage of containers containing DOT classified explosives	36w x 36d x 36h	8 Cu Ft

Figure 4 11 Flammable Liquids Storage Module



Legend

- 1 Loading Ramp
- 2 Drum/Container Storage Area (Flammable liquid storage 240 gallon max)

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6 0 PROCEDURES TO PREVENT HAZARDS [F]

The 305 B Storage Facility is operated to minimize exposure of the general public and operating personnel to dangerous and mixed waste

6 1 SECURITY [F 1]

Security for 305 B Storage Facility is provided by a combination of the overall security system for the 300 Area and a specific security system for the waste storage unit. The former controls access to the 300 Area proper while the latter controls access to 305 B Storage Facility.

The 305 B Storage Facility is located within the Hanford 300 Area. As part of the Hanford Site, the 300 Area is subject to a restricted access and personnel security system for the protection of Government property, classified information, and special nuclear materials. The 300 Area is a controlled access area with access limited to persons authorized to enter and having appropriate security clearances or escorts.

The security program for 305 B Storage Facility, in addition to 300 Area access, is designed to limit building access to those personnel within the 300 Area authorized to enter the unit. Access to 305 B Storage Facility can be gained through five walk-in doors and two large roll-up doors that facilitate loading and unloading activities. All doors to 305 B Storage Facility are kept locked at all times except when in use. All requests for keys are reviewed and approved by the unit operating supervisor and the building manager, and a record of the personnel issued keys is kept in the Operating Record at all times.

Keys to the unit are issued only to unit personnel, security personnel, and emergency response personnel. The unit operating supervisor approves any additions to this list, and the building manager approves any deletions. Specific aspects of the security programs for both the 300 Area and 305 B Storage Facility are described in more detail below.

6 1 1 Security Procedures and Equipment [F 1a]

The following sections describe the 24-hour surveillance system, barrier, and warning signs used to provide security and control access to the 305 B Storage Facility.

6 1 1 1 24 Hour Surveillance System [F 1a(1)]

The 305 B Storage Facility does not maintain a 24-hour surveillance system. Entrances to the building are kept locked except when the building is in use to prevent unauthorized access. Normal working hours for the unit are 8:00 A.M. to 4:30 P.M. Monday through Friday, except holidays. The Hanford Patrol maintains frequent drive-by surveillance of the 300 Area buildings, including 305 B Storage Facility, on a 24-hour basis to ensure that no unauthorized access to the area has occurred.

An 8-ft chain-link fence topped with three strands of barbed wire surrounds the entire 300 Area. There is no separate fence surrounding the 305 B Storage Facility. All waste management activities, however, are conducted within the unit. The facility itself, therefore, provides a barrier completely surrounding the active waste management operations.

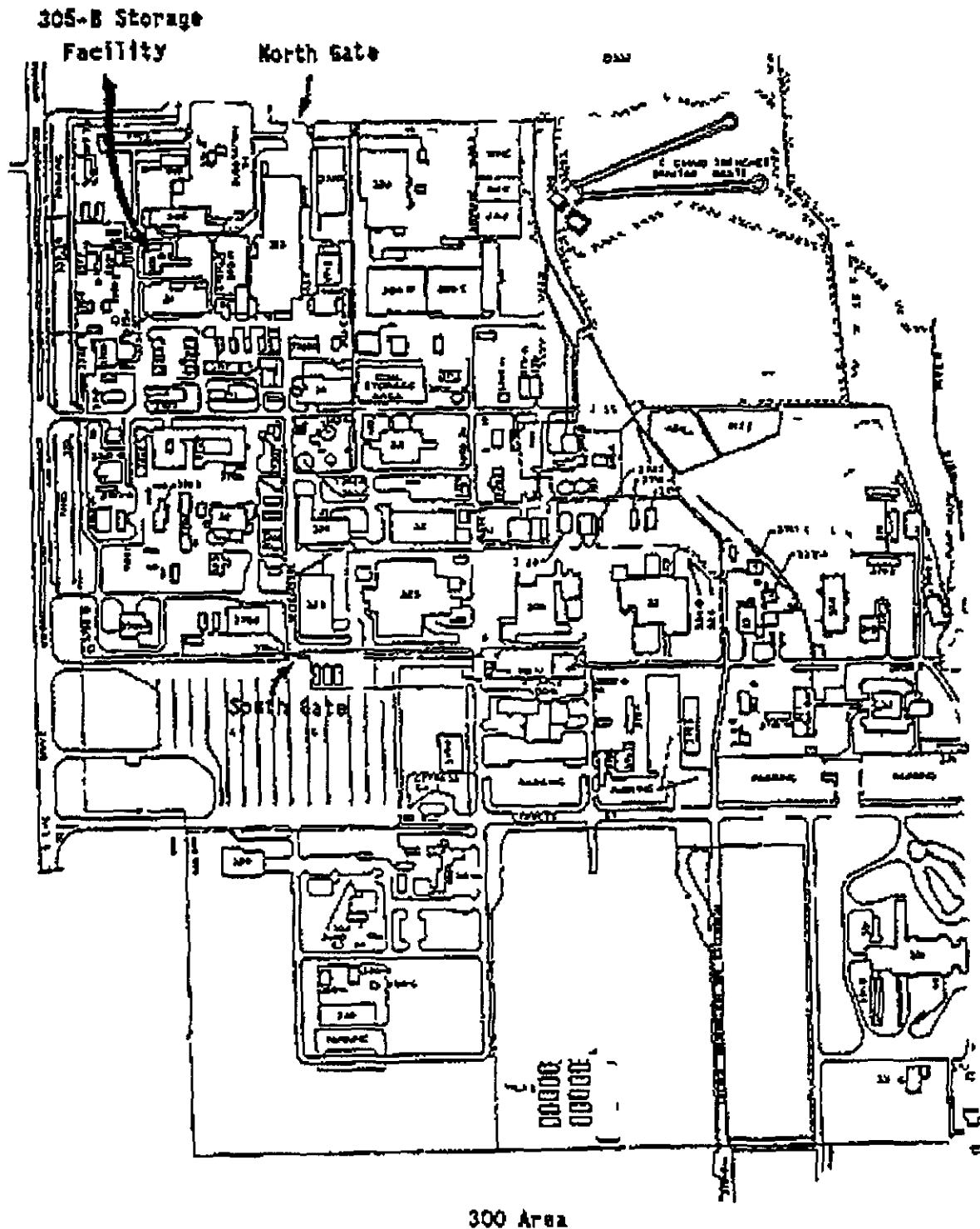


Figure 6 1 Normal Site Access Entrance at the Southern End of Wisconsin Avenue and the North End of the 300 Area Barrier and Means to Control Entry [F 1a(2)(a), (2)(b)]

Entry to the unit is controlled through the use of locked entrances. The 305 B Storage Facility is kept locked at all times except when in use. Physical control of keys and records of key distributions are maintained by PNNL Security. Distribution of keys to 305 B Storage Facility is subject to approval by the building manager and the facility operating supervisor and a list of those personnel in possession of keys are kept in the Operating Record for 305 B Storage Facility. Personnel in possession of keys have been instructed to admit only persons having official business. 305 B Storage Facility staff must escort all untrained visitors (personnel without 24/40 hour hazwoper training) in the waste storage areas.

6 1 1 2 Warning Signs [F 1a(3)]

The 305 B Storage Facility is posted with DANGER UNAUTHORIZED PERSONNEL KEEP OUT and 305 B CHEMICAL WASTE STORAGE BUILDING signs near each entrance on all sides of the unit. The signs are clearly visible from the required distance of 25 feet.

6 1 2 Waiver [F 1b(1) (2)]

Waivers of the security procedures and equipment requirements for 305 B Storage Facility are not required and will not be requested.

6 2 INSPECTION SCHEDULE [F 2]

The purpose and intent of implementing inspection procedures at 305 B Storage Facility are to prevent malfunctions, deterioration, operator errors, and/or discharges that may cause or lead to the release of regulated waste to the environment or threats to human health. A system of daily, weekly, monthly, quarterly, once every four months, and annual inspections involving various PNNL departments and levels of management are implemented at 305 B Storage Facility.

6 2 1 General Inspection Requirements [F 2a]

The content and frequency of inspections performed at 305 B Storage Facility are described in this section. Also described is maintenance of inspection records.

6 2 1 1 Types of Problems [F 2a(1)]

Daily, weekly, monthly, quarterly, once every four months, and annual inspections are performed at 305 B Storage Facility. The types of problems addressed by each of these inspections are described below.

Daily Inspections The 305 B Storage Facility is inspected daily whenever waste packaging, transfer, shipping, or movement operations are being carried out. Daily inspections monitor container condition and integrity, the building waste containment system, and other building areas where waste are handled. Specific inspection points include:

- Inspection of stored containers for leaks or damage
- Mislabeled or opened containers
- Improper storage (e.g., incompatible waste storage)
- Disorderliness or uncleanness of a storage unit
- Check for accumulation of waste in containment systems

Results of these daily inspections are recorded in the daily operating logbook that is part of the permanent 305 B Storage Facility Operating Record.

Weekly Inspections Waste management organization personnel conduct weekly inspections of both safety and operating equipment in 305 B Storage Facility. Safety and emergency equipment are inspected for functionality and adequacy of supply. Two personnel on the last workday of each week

using the inspection Logbook and the most current version of the Weekly Inspection Checklist Form that is on file at 305 B Storage Facility conduct the weekly inspection. An example of a Weekly Inspection Checklist is shown in Figure 6.2. The Inspection Checklist and Inspection Logbook become a permanent part of the 305 B Storage Facility Operating Record.

Specific problems to be looked for with each of the items inspected are identified on the Inspection Checklist Form. The use of this form enhances inspection effectiveness by providing a consistent and detailed listing of areas of potential problems and those safeguards in place to prevent them. There is space provided on the form for the inventory summary, comments, required remedial actions (if any), as well as the date such actions are accomplished. The inspector is required to sign and date the inspection checklist after performing the inspection. In addition, a space is provided for the dated signature of the co-inspector. A copy of the completed inspection form with any assigned action items is distributed to the responsible operating personnel. All corrective actions required must be completed within one week of the inspection, which found them deficient, unless there are documentation and reason for further delay. When corrective action has been completed, the responsible personnel date and initial the form.

Monthly Inspections The manager of the Environmental Management Services Department or their designee conducts monthly oversight inspections. This monthly inspection is conducted on or near the last workday of each month using the most current version of the Monthly Inspection Checklist Form. An example of a Monthly Inspection Form is shown in (Figure 6.3). Items targeted for monthly inspection include, but are not limited to, equipment function and condition, housekeeping, chemical inventory, weekly inspections and corresponding corrective actions, safety equipment operation, spill control and cleanup supplies, and general packaging material inventory. Specific problems to be looked for with each of the items inspected are identified on the Inspection Checklist Form. Copies of the inspection report memorandum are provided to operations personnel and maintained in the files of the waste management organization. Any corrective action noted on the management inspection checklist or deterioration or malfunctions in equipment discovered by the inspector are delegated to responsible individuals in the operations group. Corrective actions identified in the monthly management inspection must be completed before the next inspection cycle unless there are documentation and reason for further delay. Monthly management inspection reports, memos, and corrective action response documentation is part of the 305 B Storage Facility Operating Record.

Quarterly, Once Every Four Months, and Annual Inspections In addition to the several layers of management inspection of 305 B Storage Facility, safety inspections are performed to assure the fire protection system, eye wash/shower unit, and walk-in hood ventilation systems are in working order. The Hanford 300 Area Fire Department performs, once every four months, a inspection of fire suppressant and notification systems (i.e., sprinkler system and pull boxes). This inspection includes flow tests of the sprinklers to assure no blockage in the system lines as well as activation of the alarm system to assure proper operation of pull boxes. On an annual basis, the Fire Department performs a full inspection of the sprinkler system, heat detectors, and pull boxes. A complete flow test is performed from the furthest valve to assure flow through

the entire system. Fire extinguishers are also checked for proper pressure and function. Records of these fire inspections and the Hanford Fire Department keeps their results. Documentation of any required corrective actions is kept in the 305 B Storage Facility Operating Record.

PNNL facilities support staff perform additional documented inspections of the two emergency eye wash/shower units and the walk-in hood airflow. The safety showers and airflow of the walk-in hood are inspected quarterly. The emergency eyewash/safety showers are checked for proper operation, and the walk-in hood ventilation face velocity must meet minimum requirements. Records of these safety equipment inspections and their results, as well as documentation of any required corrective actions, are maintained by the preventive maintenance staff in PNNL's Facilities Management Department and Technical Services Department.

Figure 6 2 Example of Weekly Inspection Checklist Form

Weekly Inspection Form
305 B Storage Facility Chemical Waste Storage

Page 1 of 2

Inspector Name (print) _____ Inspector Signature _____ Time/Date _____

Co Inspector Name (print) _____ Co Inspector Signature _____ Time/Date _____

Waste Containment Locations (Y=Yes, N=No)

Earliest PCB Accumulation Date in Cell 2 _____

Earliest RMW PCB Accumulation Date _____

Cell	1 Oxidizers	2 son. PC less	3 Caustic W W Non eg	4 mmab Combustible Aerosols	5 mmab Bulk ng cylinders	6 bestos	7 Non-Flammable RMW	8 Flammable Drum storage	9 Flammable RMW	10 Non-Reg ard	11 WSDW Class 9 on-Reg Drum	12 Oxidizer Drum	13 Drums	14 like me Drums	15 explosives Magazine
Container integrity good?															
Containers properly sealed?															
Containers properly labeled?															
Containers properly segregated?															
floor free of major cracks/gaps?															
sumps empty and dry?															

Minimum aisle space present? _____ (44' leading to building exits 36' all other aisles per NFPA 101 UBC 3315(b)1 and WAC 173.303)

Inventory below 30,000 gallon design capacity? _____ Estimated Volume = _____ gallons

Inventory below UBC Class B limits? _____ (<480 gallons 1A 1B 1C total and/or <240 gallons 1B)

daily inspections logged? _____

Weekly Inspection Form
305-B Storage Facility Chemical Waste Storage

Emergency Equipment and Supplies (Y=Yes N=No)	
North eyewash safety shower clear access?	_____
South eyewash safety shower clear access?	_____
Portable eyewash outside of east bay door pressurized?	_____
Spill control station stocked for acid base solvent and other spills?	_____
Fire extinguishers (8) inspected and have clear access?	_____
Facility phone (376-4293) operational?	_____
Facility public address system (376 1885) operational?	_____
Formaldehyde spill kit (Cell 2) fully stocked with 11 lbs neutralizer?	_____
Inventory as noted and in working order?	_____
4 each full face respirators with combination organic vapor/HEPA filters?	_____
4 each full face shields?	_____
6 each Tyvek suits?	_____
6 each acid suits?	_____
20 pair eye protection glasses and/or goggles?	_____
synthetic rubber leather gloves stocked?	_____
3 each SCBA units?	_____

Action

Date Corrected

[illegible]

6 2 1 2 Frequency of Inspections [F 2a(2)]

Inspections are conducted on a daily weekly monthly quarterly and annual basis as described in Section 6 2 1 1

The frequency of inspections is based on specific regulatory requirements and on the rate of possible deterioration of equipment and probability of environmental or human health incidents

Areas where dangerous and mixed waste are actively handled including the high bay area storage cells and flammable liquid bulking module are considered to be areas subject to spills These areas are given daily inspections when in use as required by WAC 173 303 320(2)(c)

The containment system (i e floors and sumps) is inspected daily when in use for accumulation of spilled material The containment system itself is inspected weekly for structural integrity (i e no cracks gaps leaks etc that could result in environmental release of waste in the event of a spill) This frequency is based on the need to perform timely corrective actions in the event that problems are noted

Aisle space between containers is inspected weekly This frequency is based on the consideration of the rate of container transfers and movement within 305 B Storage Facility Weekly inspections will allow container spacing problems to be identified and corrected before they become major problems

Emergency and safety equipment and personal protective equipment is inspected weekly This frequency is based on consideration of the expected rate of use of this equipment Use of emergency equipment should not occur more than once during any one week period Weekly inspections will assure that this equipment is always functional and available in adequate supply

6 2 2 Specific Process Inspection Requirements [F 2b]

The following sections detail the inspections to be performed at the 305 B Storage Facility

6 2 2 1 Container Inspection [F 2b(1)]

When in use dangerous and mixed waste storage areas as well as containers stored at 305 B Storage Facility is inspected daily for leakage evidence of damage or deterioration proper and legible labeling and proper lid and bung closure When work is being performed the containment system is also checked on a daily basis for accumulation of any waste that may have been spilled into them Structural integrity of the containment systems is checked on a weekly basis

Daily and weekly inspections are performed and documented in accordance with Section 6 2 1 1 Specific inspection items are enumerated in Section 6 2 1 1 in association with the inspection description and frequency Response to problems and documentation of corrective actions are as described in Section 6 2 1 1

6 2 2 2 Tank Inspection [F 2b(2)]

This section does not apply to the 305 B Storage Facility because waste are not stored or treated in tanks

6 2 2 3 Waste Pile Inspection [F 2b(3)]

This section does not apply to the 305 B Storage Facility because waste is not placed in waste piles

Figure 6-3 Example of Monthly Inspection Checklist Form
305 B Storage Facility Monthly Management Inspection Checklist

Date/Time _____ Inspector (Print/Sign) _____

	Check if Working/ Present	Comments*
Check for present and working condition:		
Lights		
Exhaust fans (2 in highbay)		
Eye wash/showers (3)		
Fire extinguishers		
Required facility postings		
Check housekeeping:		
Inside		
Outside		
Aisles/walkway clear		
Sumps dry		
Check waste storage:		
Weekly inspection conducted/filed?		
Facility crowded?		
Container condition		
Proper segregation		
Check supply and condition of safety equipment:		
Gloves leather and disposable		
Goggles		
Face shields		
Coverall/lab coats		
Masks and cartridges		
Check spill control and cleanup supplies:		
Spill pillows – general		
Neutralizers		
Mercury		
Solvent		
Check packaging material:		
Drums 5 gallon		
Drums 30 gallon		
Drums 55 gallon		
Absorbent oil dry		
Absorbent – vermiculite		
Labels		
Marking supplies pens/spray paint		

*Corrective actions are required within the next inspection cycle

6 2 2 4 Surface Impoundment Inspection [F 2b(4)]

This section does not apply to the 305 B Storage Facility because waste is not placed in surface impoundments

6 2 2 5 Incinerator Inspection [F 2b(5)]

This section does not apply to the 305 B Storage Facility because waste is not incinerated

6 2 2 6 Landfill Inspection [F 2b(6)]

This section does not apply to the 305 B Storage Facility because waste is not placed in landfills

6 2 2 7 Land Treatment Facility Inspection [F 2b(7)]

This section does not apply to the 305 B Storage Facility because waste is not treated in land treatment units

6 3 WAIVER OR DOCUMENTATION OF PREPAREDNESS AND PREVENTION REQUIREMENTS [F 3]

The following documents the preparedness and prevention measures taken at the 305 B Storage Facility

6 3 1 Equipment Requirements [F 3a]

The following sections describe the internal and external communications and emergency equipment in use at 305 B Storage Facility

6 3 1 1 Internal Communications [F 3a(1)]

Internal communication systems are used to provide immediate emergency instruction to personnel in 305 B Storage Facility Internal communications address general emergencies that may occur in the 300 Area as well as specific emergencies that may occur in 305 B Storage Facility

Because of the nature of activities that occur in the 300 Area the potential exists for emergencies outside of 305 B Storage Facility (e g release of radioactive materials) that could impact operations and staff in 305 B Storage Facility For this reason the general emergency signals for the 300 Area are applicable to 305 B Storage Facility These signals are summarized in Table 6 1 Fire alarm signals are located in each building throughout the 300 Area The nearest emergency siren for area evacuation and take cover is located 300 yards southeast of 305 B Storage Facility on top of the 326 Building and is audible in all parts of 305 B Storage Facility Because fissile materials are not handled in 305 B Storage Facility there is no criticality alarm for the unit

Internal communications to provide emergency instruction in the event of an emergency in 305 B Storage Facility are fire alarms public address (PA) system and telephones The fire alarms are to be used to provide notification for immediate evacuation of 305 B Storage Facility Fire alarm pull boxes are located at all exits of the facility such that operating personnel have immediate access to one in all portions of 305 B Storage Facility Four fire alarm bells are located within the 305 B Storage Facility and are audible at all locations within the building The locations of the fire alarm bells are shown in Figure 6 4 and are as follows (1) an office wing on the northeast hall (2) an office wing next to the east entrance (3) on the south wall of the basement and (4) on the northeast wall of the high bay The PA system is to be used for building wide broadcasting of verbal emergency instructions to 305 B Storage Facility staff The PA system can be accessed from any unit telephone by dialing 376 1885 The PA

system speakers are located in the high bay in the basement and in the office wing of 305 B Storage Facility

The telephone system is to be used to provide verbal emergency instructions to 305 B Storage Facility staff. The telephone can also be used to verbally transmit emergency data to non 305 B Storage Facility staff and to request emergency services. A network of telephones covers both floors of the facility. Locations of telephones are shown in Figure 6 4.

Table 6-1 Emergency Signals and Responses

Signal	Meaning	Response
Gong	Fire	Evacuate building. Move upwind. Keep clear of emergency vehicles.
Siren steady 3 5 minute blast	Area Evacuation	Proceed promptly to north parking area. Stand by to follow instructions from emergency director.
Wavering Siren	Take Cover	Close up the 305 B Building. turn off all intake ventilation and go to the 314 Building south of the facility. Contact Laboratory Safety (337 Building) with your whereabouts. If this cannot be accomplished stay in the 305 B Building until notified that it is safe to leave.
Howler (Aa oo gah)	Criticality	Run immediately at least 100 yards away from the signal and take cover. Personnel inside the 305 B Building should follow the take cover procedure and wait for further instructions.
ALL EMERGENCY SIGNALS CAN BE HEARD BY PHONING 373 2345		

6 3 1 2 External Communications [F 3a(2)]

As mentioned in Section 6 3 1 1 above, both a fire alarm system and telephone network system are in place at 305 B Storage Facility. Both systems can be used to summon emergency assistance. The fire alarm system summons direct response from the Hanford Fire Department's 300 Area Station. The telephone system can be used to access Hanford's Emergency Network directly at 375 2400 or by dialing the emergency number 911. Locations of fire alarm pull boxes and telephones are given in Figure 6 4.

6 3 1 3 Emergency Equipment [F 3a(3)]

Emergency equipment available for trained 305 B Storage Facility personnel includes portable fire extinguishers, a fire suppression system, spill response equipment, and decontamination equipment. Seven portable 10 lb ABC fire extinguishers and one 15 lb (or larger) Class D fire extinguisher for combustible metals are available at various locations throughout 305 B Storage Facility, as shown in Figure 6 4. The 10 lb ABC extinguishers are located (1) next to the east entrance, (2) northwest end of the basement, (3) southwest end of the high bay, (4) outside of the bulking module door, (5) north of Cell No. 4 entrance, and (6) north west end of high bay. (7) office area. A 15 lb ABC extinguisher is located outside cell 7. The 15 lb (or larger) class D extinguisher is located on the exterior of the organics cell wall north of the entrance.

The facility is also equipped with an automatic fire suppression system consisting of galvanized steel schedule 40 per ASTM A120 pipe and 150 lb malleable iron per ANSI B16.3 fittings. All components are UL listed or FM approved, and installation of the fire sprinkler system has been conducted in accordance with NFPA 13 for ordinary hazard. Spill cleanup supplies and equipment maintained are summarized in Table 6 2. Four emergency eye wash/showers are available for emergency personnel decontamination. The locations of the emergency eye wash/showers are shown in Figure 6 4. If needed,

the Hanford Fire Department can provide additional emergency equipment. Emergency equipment available through the Hanford Fire Department for hazardous materials response is identified in Appendix 6A.

6 3 1 4 Water for Fire Control [F 3a(4)]

The large diameter line that services 305 B Storage Facility for potable use and fire protection supplies adequate water volume and pressure. Three fire hydrants are located in immediate proximity to serve the 305 B Storage Facility: (1) 80 ft directly north of the northwest corner of 305 B Storage Facility; (2) 40 ft directly south of the southwest corner of 305 B Storage Facility; and (3) 60 feet directly east of the southeast corner of 305 B Storage Facility. In addition, the Hanford Fire Department's 300 Area Station is located within 0.25 mile of 305 B Storage Facility.

6 3 2 Aisle Space Requirements [F 3b]

Containers stored in the 305 B Storage Facility are placed to provide aisle space clearance in accordance with WAC 173.303.340(3) and applicable standards of the Uniform Building Code and Life Safety Code. The proper maintenance of aisle space is inspected weekly and noted on the weekly inspection checklist (Figure 6.2).

6 4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [F-4]

The following sections describe preventive procedures, structures, and equipment.

6 4 1 Unloading Operations [F-4a]

Procedures have been developed at 305 B Storage Facility to prevent hazards and minimize the potential for breakage, punctures, or the accidental opening of containers during waste unloading. All waste unloading is performed inside the 305 B Storage Facility. The large bay door is opened and the appropriate transporting vehicle (usually a pickup truck) is driven inside. As described in Section 4.1.1.3, the unloading area has secondary containment. By unloading all waste inside the fully contained facility, spills during unloading operations will be contained. Procedures for unloading and transferring waste to storage areas have been designed to minimize hazards. All waste is inspected prior to shipment to 305 B Storage Facility to ensure that they are in appropriate containers and that the containers are in good condition. Inspection of containers prior to acceptance at 305 B Storage Facility minimizes the potential for spills during unloading operations. The potential for spills during waste handling is minimized through the use of appropriate container handling equipment. Large waste items such as drums of nonflammable RMW are lowered into the basement of the facility for storage using an overhead crane or winch assembly. The containers are immediately transported via a hand lift into the concrete-lined storage vault. Forklifts may also be used to unload heavy waste items. Small waste items can be unloaded by hand. Each small waste item is removed from the secondary containment unit in which it was transported (i.e., plastic storage tub) and placed in the appropriate storage location.

1

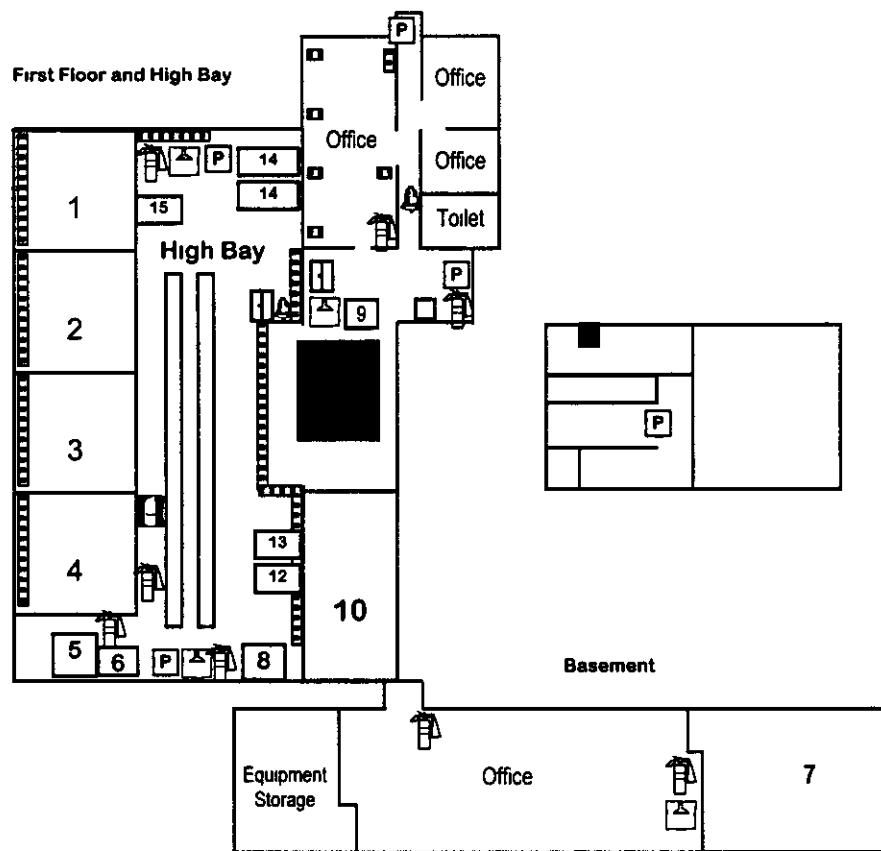
Table 6 2 Material and Equipment for Spill Containment and Cleanup

Materials/Equipment			Notes
Diatomaceous Earth	30 gallon drum	To absorb small spills of oils solvents aqueous materials Not used for acids or caustics unless first neutralized	Stored in high bay of 305 B Storage Facility
Vermiculite	55 gallon drum	To absorb small spills of oils solvents aqueous materials Not used for acids or caustics unless first neutralized	Stored in high bay of 305 B Storage Facility
Absorbent Pillows or Booms	Three cartons each containing booms or 12 pillows	To be used for diking or damming and absorption of spilled materials	Each boom or pillow can absorb slightly more than 1 L of liquid
Acid and base specific and solvent absorbents or neutralizers	50 lb box of each in 305 B Storage Facility and a 32 oz bottle of each in transport vehicle	Neutralization of known chemical spills	J T Baker™ brand or equivalent
Citric Acid	30 gallon drum	Neutralization of alkaline spills	Stored in high bay of 305 B Storage Facility
Sodium Bicarbonate	30 gallon drum	Neutralization of acid spills	Stored in high bay of 305 B Storage Facility

2

3

Figure 6-4 305 B Storage Facility Building Plan and Location of Emergency Equipment



Legend

- 1 Acids Oxidizers
- 2 Poisons Class 9
- 3 Alkaline WSDW Organic Peroxides
- 4 Organics and Compressed Aerosols
- 5 Flammable Liquid Bulking and compressed gases
- 6 Asbestos Cabinet
- 7 RMW Storage Cell
- 8 Flammable Storage
- 9 Small Quantity Flammable RMW
- 10 Outdoor Non regulated Drum Storage
- 11 WSDW Non flammable Drums
- 12 Oxidizer Drums
- 13 Acid Drums
- 14 Alkaline Drums
- 15 Explosive Magazine

- Safety Shower/Eyewash
- Phone
- Fire Alarm Bell
- Fire Alarm Pull Box
- 10 Lb ABC Fire Extinguisher
- 15 Lb or larger Class D Fire Extinguisher
- Removable Access to Basement
- Emergency Equipment Cabinet
- Collection Sump

6 4 2 Run Off [F-4b]

The 305 B Storage Facility was designed to eliminate the likelihood of off site migration via run off. Because the facility is completely enclosed (i.e. complete roof and no open walls) run off of precipitation is not a factor. In addition, floors are bermed and sloped toward sumps in the loading/unloading area and each storage cell is similarly bermed, sloped, and individually sumped to eliminate the possibility of spills interacting or migrating offsite. The main high bay area and each storage cell are fully contained by at least a 6 in. high dike or ramp. Each door from the waste handling areas to the outside has a collection trench to intercept any potential run off. The containment system for 305 B Storage Facility is described in more detail in Section 4.1.1.3.

6 4 3 Water Supplies [F-4c]

305 B Storage Facility is designed and operated to safely contain waste and prevent any contamination of water supplies. The containment system described in Section 4.1.1.3 prevents infiltration of waste that could contaminate groundwater and prevents run off of waste that could contaminate surface water. The nearest water supply is the 300 Area water intake, which is located on the Columbia River 0.5 mile from 305 B Storage Facility.

6 4 4 Equipment and Power Failure [F 4d]

The 305 B Storage Facility does not have any systems that would cause release of dangerous waste or RMW during a power failure or equipment failure. Interruption of power to any of the systems utilizing electrical power (HVAC system, crane, forklift) merely causes the equipment to stop operating. The unit has an emergency lighting system that operates automatically during power failure incidents.

For actions to be taken in the event of power failure to unit systems or equipment, refer to the unit BEP/Contingency Plan (Section 7).

6 4 5 Personnel Protection Equipment [F-4e]

Protective clothing and equipment are provided to employees during normal and emergency operations. During routine operations, the maximum number of employees working in the 305 B Storage Facility is less than fifteen. For dry chemical handling activities, such as labpacking, the minimum protection requirement is eye protection (safety glasses with side shields or chemical goggles), lab coat, and chemical resistant gloves (plastic or other construction as appropriate). Protection levels for other operations, such as bulking, and emergency situations are determined in consultation with a PNNL industrial hygienist, and staffing levels are revised according to the availability of proper protective equipment as shown below. Protective clothing and equipment available in the 305 B Storage Facility includes:

- 6 sets of chemically resistant suits, aprons, boots, and gloves
- 20 pairs of extra protective eyeglasses
- 3 SCBA
- 5 pairs of chemical goggles
- 4 face shields
- 4 full face respirators with appropriate cartridges

This protective equipment is stored in cabinets located outside of the operating area, east entrance, and is well stocked at all times. The location of the storage cabinets is given in Figure 6.4. This equipment is periodically replaced as it is used. The above inventory reflects the quantities of each type of PPE that are typically present at 305 B Storage Facility. Minimum quantities required to be present are given in the weekly inspection checklist found in the Hazardous & Miscellaneous Waste Operations Procedure.

6 5 PREVENTION OF REACTION OF IGNITABLE REACTIVE OR INCOMPATIBLE WASTE [F 5]

The following sections describe prevention of reaction of ignitable reactive and incompatible waste

6 5 1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [F 5a]

305 B Storage Facility may be used to store a variety of ignitable waste. Precautions to prevent ignition of ignitable waste involve separation of waste from sources of ignition and use of procedures which minimize the potential for accidental ignition. There are no routine sources of ignition or open flame in 305 B Storage Facility. Work with ignition or heat sources, if required, is limited and controlled by PNNL management and is performed in compliance with internal PNNL health and safety procedures for elimination of ignition sources. These internal procedures

Prohibit use of open flame equipment when working with flammable liquids

Prohibit smoking around flammable liquids [No smoking is allowed at 305 B Storage Facility]

Require electrical equipment used in flammable or explosive atmospheres to comply with the National Electrical Code NFPA 70

Require use of equipment with automatic adjustable temperature controls and high temperature limit switches to prevent overheating

Prohibit placement of flammable liquids on hot surfaces

Require all static electricity sources to be grounded in areas where ignitable vapors may be present

Require bonding of conductive containers when transferring flammable liquids

Require use of non sparking tools in flammable waste storage areas

All maintenance or modifications that require work with ignition sources must receive prior approval by a PNNL Safety Engineer. Smoking is not allowed in 305 B Storage Facility at any time and the interior and exterior of the facility are clearly posted with No Smoking signs. Waste storage areas are not heated by any radiant heat source. All tools used to open ignitable waste containers are constructed of nonsparking materials.

A PNNL fire safety engineer familiar with the Uniform Fire Code inspects ignitable waste storage areas annually. This inspection is documented in the Operating Record. There are also storage restrictions at 305 B Storage Facility for combustible waste as part of fire safety requirements. The storage restrictions defined in the Uniform Building Code for Class B Occupancy apply to 305 B Storage Facility (International Conference of Building Officials 1988). The weekly inspection for 305 B Storage Facility includes checking to see if the inventory of combustibles is below these limits. These inspections are documented in the Operating Record.

6 5 2 General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste [F 5b]

As described in Section 6 5 1, ignitable waste are managed in a manner that protects the waste from sources of ignition or open flame. Ignitable waste containers are maintained in good condition and inspected weekly to minimize the potential for releases that could result in fire. Containers of ignitable waste are protected from high temperature to prevent the potential for pressurization and buildup of ignitable vapors. Containers of ignitable waste are stored in flammable material storage cabinets within waste storage cells as described in Section 4 1 1 6. Limitations on sizes of containers and amounts of storage in cabinets are found in Section 4 3 1.

1 Because of the wide variety of waste that may be accepted at 305 B Storage Facility the potential exists
2 for storage of incompatible waste. Mixing of incompatible waste is prevented through waste segregation
3 and storage procedures. Chemical waste stored in 305 B Storage Facility are separated by compatibility
4 and hazard class and stored in separate storage cells. Separate storage shelves and cabinets are used
5 within the storage cells as described in Section 4.1.1.6 to provide further waste segregation. The
6 following general guidance is used to segregate and separate chemicals:

7 Store acids on a low storage shelf or in acid storage cabinets.

8 Separate acids from bases and alkaline metals such as potassium or sodium.

9 Separate oxidizing acids from organic acids and flammable or combustible materials.

10 Store bases away from acids and store solutions of inorganic hydroxides in polyethylene containers.

11 Store oxidizers away from flammable or combustible materials and reducing agents such as zinc
12 alkaline metals and formic acid.

13 Store peroxide forming chemicals in airtight containers in a dark, cool, and dry place (inside of
14 cabinets).

15 Store flammable materials in approved containers or cabinets.

16 Separate flammable materials from oxidizing acids and oxidizers and keep them away from sources
17 of ignition.

18 Clearly mark cabinets to identify the hazards associated with their contents.

19 The potential for waste ignition or reaction at 305 B Storage Facility is also minimized through
20 storage restrictions on hazardous material quantities. The storage restrictions defined in the Uniform
21 Building Code for Class B Occupancy apply to 305 B Storage Facility (International Conference of
22 Building Officials 1988). The weekly inspection of 305 B Storage Facility includes checking to see
23 if waste inventories are below these limits. These inspections are documented in the Operating
24 Record.

Hanford Facility RCRA Permit Modification Notification Forms
Part III, Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

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Hanford Facility RCRA Permit Modification Notification Form

Unit Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility		Permit Part & Chapter Part III Chapter 4 and Attachment 34			
<u>Description of Modification</u> Hanford Facility RCRA Permit Condition III 4 A III 4 A COMPLIANCE WITH APPROVED PERMIT APPLICATION The Permittees shall comply with all requirements set forth in Attachment 34 including the Amendments specified in Condition III 4 B if any exist Enforceable portions of the application are listed below (All subsections figures and tables included in these portions are also enforceable unless stated otherwise) LERF Part A Form 3 Permit Application Revision 6 ETF Part A Form 3 Permit Application Revision 3 Section 2 2 Topographic Map non enforceable sections in Chapter 2 were modified in Class 1 Modification for quarter ending March 31 2001 Section 3 2 Waste Analysis Plan from Class 1 Modification for quarter ending March 31 2001 Chapter 4 0 Process Information from Class 1 Modification for quarter ending September 30 2001 Chapter 5 0 Ground Water Monitoring from Class 1 Modification for quarter ending June 30 2000 Chapter 6 0 Procedures to Prevent Hazards from Class 1 Modification for quarter ending September 30 2000 Chapter 7 0 Contingency Plan from Class 1 Modification for quarter ending September 30 2000 Chapter 8 0 Personnel Training from Class 1 Modification for quarter ending September 30 2001 Chapter 11 0 Closure and Financial Assurance from Class 1 Modification for quarter ending March 31 2001 Chapter 12 0 Reporting and Recordkeeping from Class 1 Modification for quarter ending March 31 2001 Chapter 13 0 Other Federal and State Laws from Class 1 Modification for quarter ending March 31 2001 Appendix 2A Topographic Map Appendix 3A Waste Analysis Plan for the Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility from Class 1 Modification for quarter ending March 31 2001 Appendix 4A Detailed Drawings for the Liquid Effluent Retention Facility from Class 1 Modification for quarter ending March 31 2002 ¹ Appendix 4B Detailed Drawings for the 200 area Effluent Treatment Facility Container Storage Area and Tank Systems from Class 1 Modification for quarter ending March 31 2002 ¹ Appendix 5A Liquid Effluent Retention Facility Final Ground Water Monitoring Plan PNNL 11620 See Amendment III 4 B c Appendix 7A Building Emergency Plan for the Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility from Class 2 Modification dated February 2001 Enforceable portions include Sections 1 5 3 1 4 0 7 1 7 1 1 7 1 2 7 2 7 2 1 7 2 2 7 2 3 7 2 4 7 2 5 7 2 5 1 7 3 8 2 8 3 8 4 9 0 9 1 9 2 9 3 9 4 9 5 9 6 1 1 0 1 2 0 and 1 3 0					
Modification Class ¹²³		Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes		X			
Relevant WAC 173 303 830 Appendix I Modification		A 1			
Enter wording of the modification from WAC 173 303 830, Appendix I citation A General Permit Provisions 1 Administrative and informational changes					
Submitted by Co Operator	Reviewed by RL Program Office	Reviewed by Ecology		Reviewed by Ecology	
<i>J A Van Vliet</i> 3/22/02	<i>G H Sanders</i> 4/2/02				
J A Van Vliet	G H Sanders	F Jamison	L E Ruud		
Date	Date	Date	Date		

¹ Class 1 modifications requiring prior Agency approval

² This is only an advanced notification of an intended Class ¹ 2 or 3 modification this should be followed with a formal modification request and consequently implement the required Public Involvement processes when required

³ If the proposed modification does not match any modification listed in WAC 173 303 830 Appendix I then the proposed modification should automatically be given a Class 3 status This status may be maintained by the Department of Ecology or down graded to ¹1 if appropriate

Hanford Facility RCRA Permit Modification Notification Form

Unit Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility	Permit Part & Chapter Part III Chapter 4 and Attachment 34
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Description of Modification

Appendix 4A Table 4A 2

Table 4A 2 Liquid Effluent Retention Facility Piping and Instrumentation

LERF System	Drawing Number	Outstanding ECNs	Drawing Title
Transfer Piping to 242 A Evaporator	H 2 79604 Sh 1 Rev 3	ECN 648330	Piping Plot and Key Plans 242 A Evaporator Condensate Stream (Sheet 1)
LERF Piping and Instrumentation	H 2 88766 Sh 1 Rev 36	ECN 648330 ECN 656789 ECN 658555	P&ID LERF Basin and ETF Influent (Sheet 1)
LERF Piping and Instrumentation	H 2 88766 Sh 2 Rev 57	ECN 647209L ECN 648330 ECN 658555 ECN 664355	P&ID LERF Basin and ETF Influent (Sheet 2)
LERF Piping and Instrumentation	H 2 88766 Sh 3 Rev 68	ECN 648330 ECN 709380L ECN 658555 ECN 664319	P&ID LERF Basin and ETF Influent (Sheet 3)
LERF Piping and Instrumentation	H 2 88766 Sh 4 Rev 69	ECN 648330 ECN 658584 ECN 658555 ECN 664320	P&ID LERF Basin and ETF Influent (Sheet 4)
	H 2 89351 Sh 1 Rev 7	None HNF FMP 01 9507 R0	Piping & Instrumentation Diagram Legend

P&ID piping and instrumentation diagram

Modification Class ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes	X			

Relevant WAC 173 303 830 Appendix I Modification A 1

Enter wording of the modification from WAC 173 303 830, Appendix I citation

A General Permit Provisions

1 Administrative and informational changes

Submitted by Co Operator	Reviewed by RL Program Office	Reviewed by Ecology	Reviewed by Ecology
3/22/02	4/2/02		
J A Van Vliet Date	G H Sanders Date	F Jamison Date	L E Ruud Date

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Hanford Facility RCRA Permit Modification Notification Form

Unit
Liquid Effluent Retention Facility and
200 Area Effluent Treatment Facility

Permit Part & Chapter
Part III Chapter 4 and Attachment 34

Description of Modification

Appendix 4B Table 4B 1

Table 4B 1 Drawing of Effluent Treatment Facility and Load In Station Secondary Containment Systems

ETF Process Unit	Drawing Number	Outstanding ECNs	Drawing Title
Surge Tank Process/Container Storage Areas and Trenches Foundation and Containment	H 2 89063 Sh 1 Rev 3	ECN 647892	STRUCT – Foundation and Grade Beam Plan (Sheet 1)
Sump Tank Containment	H 2 89065 Sh 1 Rev 3	None	STRUCT – Foundation Sections and Detail (Sheet 1)
Verification Tank Foundation and Containment	H 2 89068 Sh 1 Rev 3	ECN 647892	STRUCT – Verification Tank Foundation (Sheet 1)
Load In Facility Foundation and Containment	H 2 817970 Sh 1 Rev 1	ECN 641703 ECN 647247 ECN 649104	Structural – ETF Truck Load in Facility Plans and Sections (Sheet 1)
Load In Facility Foundation and Containment	H 2 817970 Sh 2 Rev 1	ECN 641703 ECN 649104	Structural – ETF Truck Load in Facility Sections and Details (Sheet 2)

P&ID piping and instrumentation diagram

STRUCT architectural/structural diagram

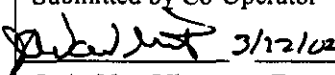
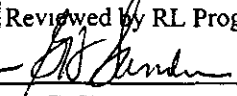
Modification Class ¹²³	Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes	X			

Relevant WAC 173 303 830 Appendix I Modification A 1

Enter wording of the modification from WAC 173 303 830, Appendix I citation

A General Permit Provisions

1 Administrative and informational changes

Submitted by Co Operator	Reviewed by RL Program Office	Reviewed by Ecology	Reviewed by Ecology
 3/12/02	 4/2/02		
J A Van Vliet Date	G H Sanders Date	F Jamison Date	L E Ruud Date

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Hanford Facility RCRA Permit Modification Notification Form

Unit Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility		Permit Part & Chapter Part III Chapter 4 and Attachment 34			
Description of Modification Appendix 4B Table 4B 2					
Table 4B 2 Drawings of Major Process Units and Tanks at the Effluent Treatment Facility and Load In Station					
ETF Process Unit	Drawing Number	Outstanding ECNs	Drawing Title		
Load In Facility	H 2 817974 Sh 1 Rev 12	None ECN-658555	P&ID – ETF Truck Load In Facility (Sheet 1)		
Load In Facility	H 2 817974 Sh 2 Rev 0	None	P&ID – ETF Truck Load In Facility (Sheet 2)		
Surge Tank	H 2 89337 Sh 1 Rev 13	ECN 644244	P&ID – Surge Tank System (Sheet 1)		
UV/Oxidation	H 2 88976 Sh 1 Rev 910	ECN 647245 None	P&ID – UV Oxidizer Part 1 (Sheet 1)		
UV/Oxidation	H 2 89342 Sh 1 Rev 78	ECN 647245 None	P&ID – UV Oxidizer Part 2 (Sheet 1)		
Reverse Osmosis	H 2 88980 Sh 1 Rev 10	None ECN 662006	P&ID – 1st RO Stage (Sheet 1)		
Reverse Osmosis	H 2 88982 Sh 1 Rev 12	None ECN 662006	P&ID – 2nd RO Stage (Sheet 1)		
IX/Polishers	H 2 88983 Sh 1 Rev 112	ECN 642800 ECN 664323	P&ID – Polisher (Sheet 1)		
Verification Tanks	H 2 88985 Sh 1 Rev 9	None	P&ID – Verification Tank System (Sheet 1)		
ETF Evaporator	H 2 89335 Sh 1 Rev 1416	ECN 641719 ECN 653080L ECN 651583 ECN 664332 HNF FMP 01 9013 R0	P&ID – Evaporator (Sheet 1)		
Thin Film Dryer	H 2 88989 Sh 1 Rev 1720	ECN 648765 ECN 656781L ECN 656781L ECN 662046 ECN 664330 ECN 664331 HNF FMP 01 9632 R0	P&ID – Thin Film Dryer (Sheet 1)		
Transfer Piping from LERF to ETF	H 2 88768 Sh 1 Rev 1	None	Piping Plan/Profile 4 – 60M 002 M17 and 3 60M 001 M17 (Sheet 1)		
Transfer Piping from Load In Facility to ETF	H 2 817969 Sh 1 Rev 1	ECN W291 015 ECN 641703 ECN 649104	Civil – ETF Truck Load In Facility Site Plan (Sheet 1)		
P&ID piping and instrumentation diagram STRUCT architectural/structural diagram					
Modification Class ¹²³		Class 1	Class ¹ 1	Class 2	Class 3
Please check one of the Classes		X			
Relevant WAC 173 303 830 Appendix I Modification A 1					
Enter wording of the modification from WAC 173 303 830, Appendix I citation					
A General Permit Provisions					
1 Administrative and informational changes					
Submitted by Co Operator	Reviewed by RL Program Office	Reviewed by Ecology		Reviewed by Ecology	
<i>J A Van Vliet</i> 3/27/02	<i>G H Sanders</i> 4/2/02				
J A Van Vliet	G H Sanders	F Jamison	L E Ruud		
Date	Date	Date	Date		

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Hanford Facility RCRA Permit Modifications
Part III Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Replacement Sections

Index

Appendix 4A

Appendix 4B

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APPENDIX 4A

DETAILED DRAWINGS FOR THE LIQUID EFFLUENT RETENTION FACILITY

- 1 Drawings of the containment systems at the LERF are summarized in Table 4A 1 Because the failure of
2 these containment systems at LERF could lead to the release of dangerous waste into the environment
3 Engineering Change Notices (ECNs) which affect these containment systems will be submitted to the
4 Washington State Department of Ecology as a Class 1 2 or 3 permit modification as required by
5 WAC 173 303 830

Table 4A 1 Liquid Effluent Retention Facility Containment System

LERF System	Drawing Number	Outstanding ECNs	Drawing Title
Bottom Liner	H 2 79590 Sh 1 Rev 3	None	Civil Plan Sections and Details Cell Basin Bottom Liner (Sheet 1)
Top Liner	H 2 79591 Sh 1 Rev 3	None	Civil Plan Sections and Details Cell Basin Bottom Liner (Sheet 1)
Catch Basin	H 2 79593 Sh 1 Rev 4	None	Civil Plan Section and Details Catch Basin (Sheet 1)

- 6 P&ID piping and instrumentation diagram

- 7 The drawings identified in Table 4A 2 illustrate the piping and instrumentation configuration within
8 LERF and of the transfer piping systems between the LERF and the 242 A Evaporator These drawings
9 are provided for general information and to demonstrate the adequacy of the design of the LERF as a
10 surface impoundment An update to these drawings and drawings identified in Table 4A 1 will be
11 provided annually to the Washington State Department of Ecology

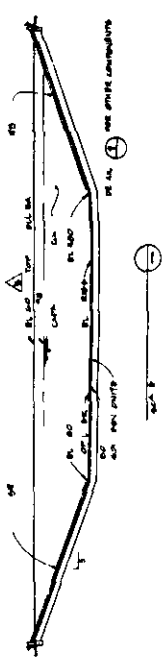
Table 4A 2 Liquid Effluent Retention Facility Piping and Instrumentation

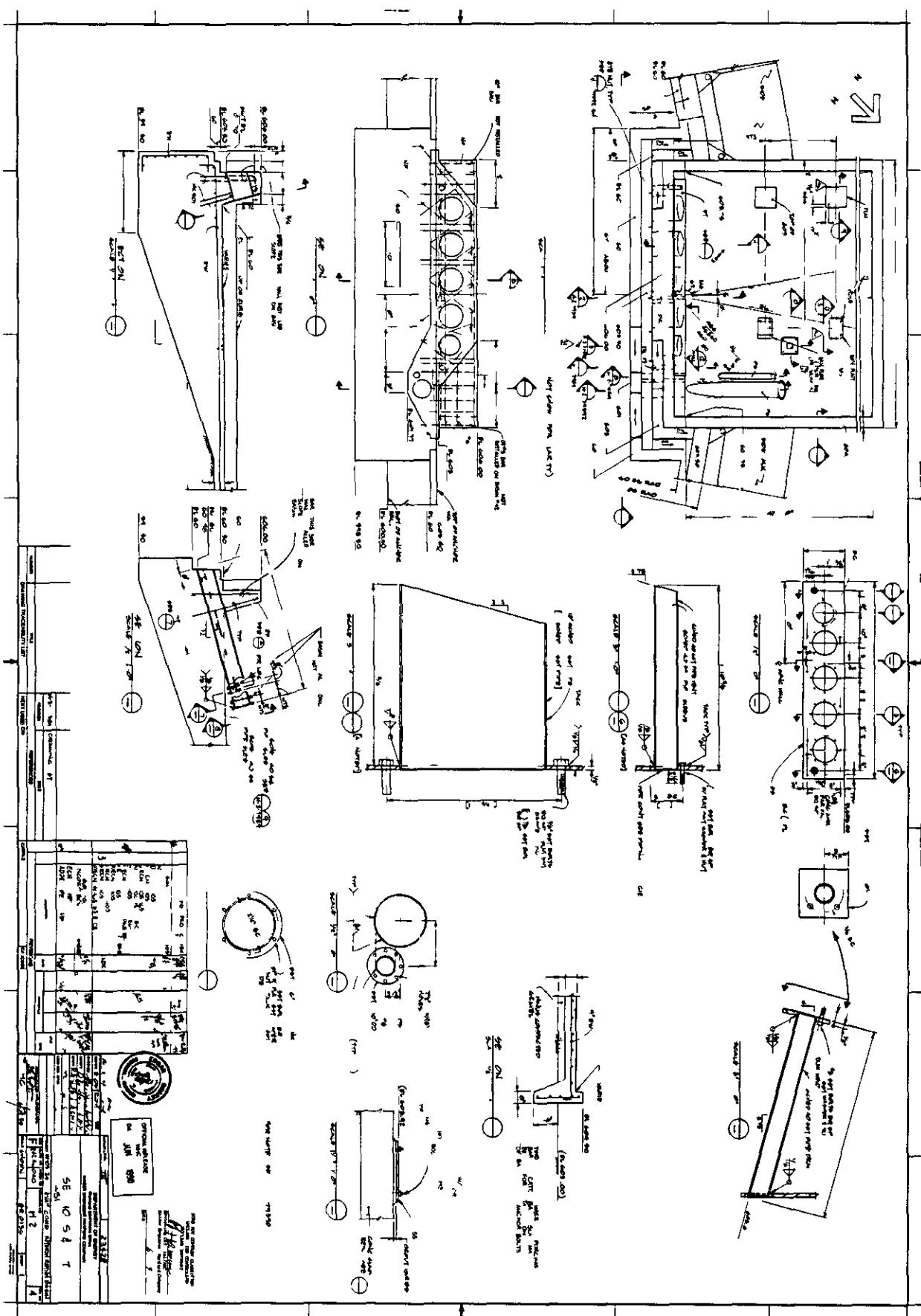
LERF System	Drawing Number	Outstanding ECNs	Drawing Title
Transfer Piping to 242 A Evaporator	H 2 79604 Sh 1 Rev 3	ECN 648330	Piping Plot and Key Plans 242 A Evaporator Condensate Stream (Sheet 1)
LERF Piping and Instrumentation	H 2 88766 Sh 1 Rev 6	ECN 658555	P&ID LERF Basin and ETF Influent (Sheet 1)
LERF Piping and Instrumentation	H 2 88766 Sh 2 Rev 7	ECN 647209L ECN 658555 ECN 664355	P&ID LERF Basin and ETF Influent (Sheet 2)
LERF Piping and Instrumentation	H 2 88766 Sh 3 Rev 8	ECN 658555 ECN 664319	P&ID LERF Basin and ETF Influent (Sheet 3)
LERF Piping and Instrumentation	H 2 88766 Sh 4 Rev 9	ECN 658555 ECN 664320	P&ID LERF Basin and ETF Influent (Sheet 4)
	H 2 89351 Sh 1 Rev 7	HNF FMP 01 9507 R0	Piping & Instrumentation Diagram Legend

- 12 P&ID piping and instrumentation diagram

Part III Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Appendix 4A Table 4A 1

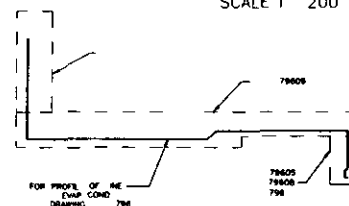
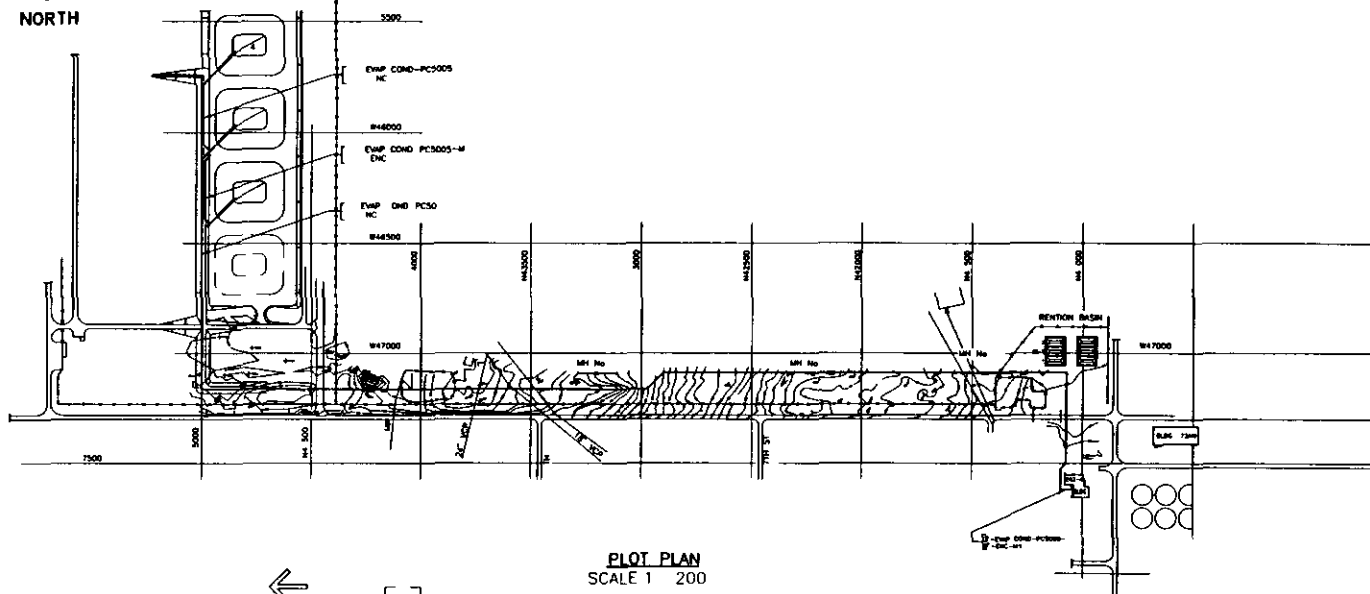




GENERAL NOTES	
1.	ALL DIMENSIONS ARE IN METERS
2.	ALL WALLS ARE 200 MM THICK UNLESS OTHERWISE SPECIFIED
3.	ALL FLOORS ARE 100 MM THICK CONCRETE SLABS
4.	ALL ROOFS ARE 150 MM THICK CONCRETE SLABS
5.	ALL FOUNDATIONS ARE 300 MM THICK CONCRETE
6.	ALL DOORS AND WINDOWS ARE TO BE AS SUPPLIED
7.	ALL ELECTRICAL AND PLUMBING WORK IS TO BE AS SUPPLIED
8.	ALL PAINTING IS TO BE AS SUPPLIED
9.	ALL LANDSCAPING IS TO BE AS SUPPLIED
10.	ALL FURNITURE IS TO BE AS SUPPLIED
11.	ALL LIGHTING IS TO BE AS SUPPLIED
12.	ALL HEATING AND COOLING IS TO BE AS SUPPLIED
13.	ALL SANITARY AND VENTILATION IS TO BE AS SUPPLIED
14.	ALL STRUCTURAL WORK IS TO BE AS SUPPLIED
15.	ALL FINISHES ARE TO BE AS SUPPLIED
16.	ALL MATERIALS ARE TO BE AS SUPPLIED
17.	ALL LABOR IS TO BE AS SUPPLIED
18.	ALL EQUIPMENT IS TO BE AS SUPPLIED
19.	ALL UTILITIES ARE TO BE AS SUPPLIED
20.	ALL SERVICES ARE TO BE AS SUPPLIED
21.	ALL CONNECTIONS ARE TO BE AS SUPPLIED
22.	ALL JOINTS ARE TO BE AS SUPPLIED
23.	ALL SEALS ARE TO BE AS SUPPLIED
24.	ALL GASKETS ARE TO BE AS SUPPLIED
25.	ALL FASTENERS ARE TO BE AS SUPPLIED
26.	ALL WELDING IS TO BE AS SUPPLIED
27.	ALL BRACING IS TO BE AS SUPPLIED
28.	ALL SHORING IS TO BE AS SUPPLIED
29.	ALL SCAFFOLDING IS TO BE AS SUPPLIED
30.	ALL CRANES ARE TO BE AS SUPPLIED
31.	ALL LIFTING DEVICES ARE TO BE AS SUPPLIED
32.	ALL HOISTING DEVICES ARE TO BE AS SUPPLIED
33.	ALL PULLING DEVICES ARE TO BE AS SUPPLIED
34.	ALL PUSHING DEVICES ARE TO BE AS SUPPLIED
35.	ALL DRAGGING DEVICES ARE TO BE AS SUPPLIED
36.	ALL TOWING DEVICES ARE TO BE AS SUPPLIED
37.	ALL LIFTING CAPACITY IS TO BE AS SUPPLIED
38.	ALL PULLING CAPACITY IS TO BE AS SUPPLIED
39.	ALL PUSHING CAPACITY IS TO BE AS SUPPLIED
40.	ALL DRAGGING CAPACITY IS TO BE AS SUPPLIED
41.	ALL TOWING CAPACITY IS TO BE AS SUPPLIED
42.	ALL LIFTING SPEED IS TO BE AS SUPPLIED
43.	ALL PULLING SPEED IS TO BE AS SUPPLIED
44.	ALL PUSHING SPEED IS TO BE AS SUPPLIED
45.	ALL DRAGGING SPEED IS TO BE AS SUPPLIED
46.	ALL TOWING SPEED IS TO BE AS SUPPLIED
47.	ALL LIFTING TIME IS TO BE AS SUPPLIED
48.	ALL PULLING TIME IS TO BE AS SUPPLIED
49.	ALL PUSHING TIME IS TO BE AS SUPPLIED
50.	ALL DRAGGING TIME IS TO BE AS SUPPLIED
51.	ALL TOWING TIME IS TO BE AS SUPPLIED
52.	ALL LIFTING DISTANCE IS TO BE AS SUPPLIED
53.	ALL PULLING DISTANCE IS TO BE AS SUPPLIED
54.	ALL PUSHING DISTANCE IS TO BE AS SUPPLIED
55.	ALL DRAGGING DISTANCE IS TO BE AS SUPPLIED
56.	ALL TOWING DISTANCE IS TO BE AS SUPPLIED
57.	ALL LIFTING HEIGHT IS TO BE AS SUPPLIED
58.	ALL PULLING HEIGHT IS TO BE AS SUPPLIED
59.	ALL PUSHING HEIGHT IS TO BE AS SUPPLIED
60.	ALL DRAGGING HEIGHT IS TO BE AS SUPPLIED
61.	ALL TOWING HEIGHT IS TO BE AS SUPPLIED
62.	ALL LIFTING WEIGHT IS TO BE AS SUPPLIED
63.	ALL PULLING WEIGHT IS TO BE AS SUPPLIED
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65.	ALL DRAGGING WEIGHT IS TO BE AS SUPPLIED
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67.	ALL LIFTING FORCE IS TO BE AS SUPPLIED
68.	ALL PULLING FORCE IS TO BE AS SUPPLIED
69.	ALL PUSHING FORCE IS TO BE AS SUPPLIED
70.	ALL DRAGGING FORCE IS TO BE AS SUPPLIED
71.	ALL TOWING FORCE IS TO BE AS SUPPLIED
72.	ALL LIFTING POWER IS TO BE AS SUPPLIED
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75.	ALL DRAGGING POWER IS TO BE AS SUPPLIED
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78.	ALL PULLING EFFICIENCY IS TO BE AS SUPPLIED
79.	ALL PUSHING EFFICIENCY IS TO BE AS SUPPLIED
80.	ALL DRAGGING EFFICIENCY IS TO BE AS SUPPLIED
81.	ALL TOWING EFFICIENCY IS TO BE AS SUPPLIED
82.	ALL LIFTING CAPACITY FACTOR IS TO BE AS SUPPLIED
83.	ALL PULLING CAPACITY FACTOR IS TO BE AS SUPPLIED
84.	ALL PUSHING CAPACITY FACTOR IS TO BE AS SUPPLIED
85.	ALL DRAGGING CAPACITY FACTOR IS TO BE AS SUPPLIED
86.	ALL TOWING CAPACITY FACTOR IS TO BE AS SUPPLIED
87.	ALL LIFTING CAPACITY FACTOR IS TO BE AS SUPPLIED
88.	ALL PULLING CAPACITY FACTOR IS TO BE AS SUPPLIED
89.	ALL PUSHING CAPACITY FACTOR IS TO BE AS SUPPLIED
90.	ALL DRAGGING CAPACITY FACTOR IS TO BE AS SUPPLIED
91.	ALL TOWING CAPACITY FACTOR IS TO BE AS SUPPLIED
92.	ALL LIFTING CAPACITY FACTOR IS TO BE AS SUPPLIED
93.	ALL PULLING CAPACITY FACTOR IS TO BE AS SUPPLIED
94.	ALL PUSHING CAPACITY FACTOR IS TO BE AS SUPPLIED
95.	ALL DRAGGING CAPACITY FACTOR IS TO BE AS SUPPLIED
96.	ALL TOWING CAPACITY FACTOR IS TO BE AS SUPPLIED
97.	ALL LIFTING CAPACITY FACTOR IS TO BE AS SUPPLIED
98.	ALL PULLING CAPACITY FACTOR IS TO BE AS SUPPLIED
99.	ALL PUSHING CAPACITY FACTOR IS TO BE AS SUPPLIED
100.	ALL DRAGGING CAPACITY FACTOR IS TO BE AS SUPPLIED

Part III Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Appendix 4 A Table 4A 2



DWG NO		TITLE		REV NUMBER	DWG LIST	REV CH		6/25/25	D. AUTOCAD PER DWG		DWG NO		242 A EVAP COND	
DRAWING TR		ABILITY		NOTES		REV		REVISIONS		DWG NO		242 A EVAP COND		
NEXT DTS ON		DATE		ADP		REV		REVISIONS		DWG NO		242 A EVAP COND		
DWG NO		TITLE		REV NUMBER	DWG LIST	REV CH		6/25/25	D. AUTOCAD PER DWG		DWG NO		242 A EVAP COND	
DRAWING TR		ABILITY		NOTES		REV		REVISIONS		DWG NO		242 A EVAP COND		
NEXT DTS ON		DATE		ADP		REV		REVISIONS		DWG NO		242 A EVAP COND		

S

ORIGINAL**ENGINEERING CHANGE NOTICE****ESSENTIAL**

Page 1 of 718

1 ECN 648330

Proj
ECN

2 ECN Category (mark one) Supplemental <input checked="" type="radio"/> Direct Revision <input type="radio"/> Change ECN <input type="radio"/> Temporary <input type="radio"/> Standby <input type="radio"/> Supersedeure <input type="radio"/> Cancel/Void <input type="radio"/>		3 Originator's Name Organization MSIN and Telephone No MA Przybylski FFS S5-50 376-4017		4 USQ Required? <input type="radio"/> Yes <input checked="" type="radio"/> No	5 Date 10/13/2000																																																
		6 Project Title/No /Work Order No Site/Utility Systems TWRS Privatization Phase I		7 Bldg /Sys./Fac No 242-AL/60M	8 Approval Designator T E																																																
		9 Document Numbers Changed by this ECN (includes sheet no and rev) See Block 13a Below		10 Related ECN No(s) N/A	11 Related PO No N/A																																																
12a Modification Work <input checked="" type="radio"/> Yes (fill out Blk 12b) <input type="radio"/> No (NA Blks 12b 12c 12d)		12b Work Package No EL-00-00209	12c Modification Work Completed Design Authority/Cog Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECNs only) N/A Design Authority/Cog Engineer Signature & Date																																																
13a Description of Change H-2-88766 sh1 rev 3 revise as shown on page 5 H-2-88766 sh2 rev 5 revise as shown on page 6 H-2-88766 sh3 rev 6 revise as shown on page 7 H-2-88766 sh4 rev 6 revise as shown on page 8 H-2-88766 sh5 rev 0 Page 9 of this ECN supercedes Sh 5 Rev 0 of H-2-88766 in its entirety Appropriate changes shown on page 9 H-2-88815 sh5 rev 2 revise as shown on page 10 H-2-88818 sh2 rev 0 add elementary ladder rungs 38 thru 44 as shown on page 11 H-2-88836 sh3 rev 1 add termination wiring as shown on page 11 SEE PAGE 3 FOR CONTINUATION OF BLOCK 13a																																																					
14a Justification (mark one) Criteria Change <input type="radio"/> Design Improvement <input type="radio"/> Environmental <input type="radio"/> Facility Deactivation <input type="radio"/> As-Found <input type="radio"/> Facilitate Const <input checked="" type="radio"/> Const Error/Omission <input type="radio"/> Design Error/Omission <input type="radio"/>		14b Justification Details This ECN identifies all modifications to the existing LERF/ETF essential drawings caused by W519 tie ins																																																			
15 Distribution (include name MSIN and no of copies) <table border="0"> <tr> <td>NHC Files</td> <td>G3-11</td> <td>TDC</td> <td>E6-02</td> <td>BA Messinger</td> <td>B4-39</td> </tr> <tr> <td>RJ Parazin</td> <td>S5-09</td> <td>OCL/FILE</td> <td>S5-09</td> <td>JM Isdell</td> <td>B4-39</td> </tr> <tr> <td>ML Alexander</td> <td>E6-27</td> <td>Project Records</td> <td>R1-29</td> <td>JB Benton</td> <td>S6-72</td> </tr> <tr> <td>MA Friedrich</td> <td>G3-15</td> <td>JM Neville</td> <td>G3-11</td> <td>MJ Brown</td> <td>S6-72</td> </tr> <tr> <td>MA Haq</td> <td>B4-39</td> <td>SJ Lepka</td> <td>S5-09</td> <td colspan="2">* Advanced Copy</td> </tr> <tr> <td>JL Henderson</td> <td>G3-11</td> <td>NJ Sullivan</td> <td>S6-72</td> <td colspan="2">Hard</td> </tr> <tr> <td>JJ Huston</td> <td>B4-68</td> <td>LL Lin</td> <td>S6-72</td> <td colspan="2"></td> </tr> <tr> <td>MA Przybylski</td> <td>S5-50</td> <td>MM Towne</td> <td>S6-74</td> <td colspan="2"></td> </tr> </table>						NHC Files	G3-11	TDC	E6-02	BA Messinger	B4-39	RJ Parazin	S5-09	OCL/FILE	S5-09	JM Isdell	B4-39	ML Alexander	E6-27	Project Records	R1-29	JB Benton	S6-72	MA Friedrich	G3-15	JM Neville	G3-11	MJ Brown	S6-72	MA Haq	B4-39	SJ Lepka	S5-09	* Advanced Copy		JL Henderson	G3-11	NJ Sullivan	S6-72	Hard		JJ Huston	B4-68	LL Lin	S6-72			MA Przybylski	S5-50	MM Towne	S6-74		
NHC Files	G3-11	TDC	E6-02	BA Messinger	B4-39																																																
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ML Alexander	E6-27	Project Records	R1-29	JB Benton	S6-72																																																
MA Friedrich	G3-15	JM Neville	G3-11	MJ Brown	S6-72																																																
MA Haq	B4-39	SJ Lepka	S5-09	* Advanced Copy																																																	
JL Henderson	G3-11	NJ Sullivan	S6-72	Hard																																																	
JJ Huston	B4-68	LL Lin	S6-72																																																		
MA Przybylski	S5-50	MM Towne	S6-74																																																		

RELEASE STAMP

OCT 31 2000

DATE

STA 30

HANFORD
RELEASE

ID: 18

ORIGINAL

ENGINEERING CHANGE NOTICE

Page 2 of 18

1 ECN (use no from pg 1)

648330

16 Design Verification Required

☒ Yes☐ No

17 Cost Impact

ENGINEERING

Additional ☐ \$ _____Savings ☐ \$ _____

CONSTRUCTION

Additional ☐ \$ N/ASavings ☐ \$ N/A

18 Schedule Impact (days)

Improvement ☐ N/ADelay ☐ N/A

19 Change Impact Review Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	<input type="checkbox"/>	Seismic/Stress Analysis	<input type="checkbox"/>	Tank Calibration Manual	<input type="checkbox"/>
Functional Design Criteria	<input type="checkbox"/>	Stress/Design Report	<input type="checkbox"/>	Health Physics Procedure	<input type="checkbox"/>
Operating Specification	<input type="checkbox"/>	Interface Control Drawing	<input type="checkbox"/>	Spares Multiple Unit Listing	<input type="checkbox"/>
Criticality Specification	<input type="checkbox"/>	Calibration Procedure	<input checked="" type="checkbox"/>	Test Procedures/Specification	<input type="checkbox"/>
Conceptual Design Report	<input type="checkbox"/>	Installation Procedure	<input type="checkbox"/>	Component Index	<input checked="" type="checkbox"/>
Equipment Spec	<input type="checkbox"/>	Maintenance Procedure	<input checked="" type="checkbox"/>	ASME Coded Item	<input type="checkbox"/>
Const Spec	<input type="checkbox"/>	Engineering Procedure	<input type="checkbox"/>	Human Factor Consideration	<input type="checkbox"/>
Procurement Spec	<input type="checkbox"/>	Operating Instruction	<input type="checkbox"/>	Computer Software	<input checked="" type="checkbox"/>
Vendor Information	<input checked="" type="checkbox"/>	Operating Procedure	<input checked="" type="checkbox"/>	Electric Circuit Schedule	<input type="checkbox"/>
OM Manual	<input type="checkbox"/>	Operational Safety Requirement	<input type="checkbox"/>	ICRS Procedure	<input type="checkbox"/>
FSAR/SAR	<input type="checkbox"/>	IEFD Drawing	<input type="checkbox"/>	Process Control Manual/Plan	<input type="checkbox"/>
Safety Equipment List	<input type="checkbox"/>	Cell Arrangement Drawing	<input type="checkbox"/>	Process Flow Chart	<input type="checkbox"/>
Radiation Work Permit	<input type="checkbox"/>	Essential Material Specification	<input type="checkbox"/>	Purchase Requisition	<input type="checkbox"/>
Environmental Impact Statement	<input type="checkbox"/>	Fac Proc Samp Schedule	<input type="checkbox"/>	Tickler File	<input checked="" type="checkbox"/>
Environmental Report	<input type="checkbox"/>	Inspection Plan	<input type="checkbox"/>	N/A 224	<input checked="" type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input checked="" type="checkbox"/>		<input type="checkbox"/>

20 Other Affected Documents (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision

Document Number/Revision

Document Number/Revision

See Page 3 and 4 for Other

Affected Documents.

POP 60M-001 POP 60M 003, ARP-60M-001, HNF SD Lef M4 002

21 Approvals

Signature

Date

Signature

Date

Design Authority [Signature] 10/31/00

(Nuclear Review)

Cog Eng _____

Cog Mgr [Signature] 10-31-00

QA _____

Safety _____

Environ [Signature] 10/31/00

Other _____

Design Agent [Signature] 10/25/00

PE _____

QA _____

Safety _____

Design _____

Environ _____

Other _____

2 PF Cog Eng [Signature] 10/28/00[Signature] 10/31/00[Signature] 10/31/00

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

Page 3 of 18

ECN 648330

Date 10/13/2000

13a CONTINUATION

H-2-79668 sh5 rev 6 add additional heat trace loads to elementary diagrams as shown on page 12

H-2-85323 sh1 rev 0 add panelboard A as shown on page 13

H-2-85323 sh3 rev 2 revise as shown on page 14

H-2-85323 sh4 rev 4 revise as shown on page 15

H-2-85323 sh5 rev 2 revise as shown on page 16

H-2-85323 sh8 rev 0 add new sheet 8 as shown on page 17

~~2nd 10/26/00~~
~~Block 20+ Other Affected Documents.~~

H-2-79604 sh1 / Rev 3 / This drawing is modified by project W519 drawing H-2-830093 sh 1

H-13-000198 sh 1 / Rev 1 / & sh 2 / Rev 1 / These drawings are modified by project W519 drawing H-2-830093

H-13-000198 sh 3 / Rev 1 / Add the following pipelines to drawing Also see this ECN (648330) for pipeline information

4 -WTP-001-M17 3 -WTP-002-M17 4 -80W-001-M17 4 -80W-002-M17

4 -80W-003-M17 4 -80W-004-M17 4 -80W-005-M17

H-2-79609^{sh1} / Rev 3 / This drawing is modified by project W519 drawings H-2-830095 sh 1
H-2-830096 sh 1 and H-2-830097 sh 1 The 3 -WTP-002-M17 line ties into the PC5000 line at N41804 7 W47070 at STA 1+357 1 (Zone D-5)

H-2-79610^{sh1} / Rev 3 / This drawing is modified by project W519 drawings H-2-830097 sh 1 and H-2-830098 sh 1

H-2-79613^{sh1} / Rev 4 / This drawing is modified by project W519 drawing H-2-830099 sh 1-3

H-2-79614^{sh1} / Rev 4 / This drawing is modified by project W519 drawing H-2-830100 sh 1 3

H-2-79615^{sh1} / Rev 4 / This drawing is modified by project W519 drawing H-2-830101 sh 1-3

H-2-88738 sh 1 / Rev 1 / & sh 2 / Rev 1 / Modified by project W519
See drawings H-2-830105 through H-2-830109 for changes

H-2-88810 sh 1 / Rev 1 / sh 2 / Rev 1 / sh 3 / Rev 1 / sh 4 / Rev 0 / Modified by project W519 See drawings H-2-830105 through H-2-830109 for changes

H-2-88813 sh 1 / Rev 1 / & sh 2 / Rev 1 / ~~sh 4 / Rev 0~~ / Modified by project W519
See drawings H-2-830105 through H-2-830109 for changes

H-2-88817 sh 1 / Rev 2 / Modified by project W519 See drawings H-2-830105 through H-2-830109 for changes

H-2-88818 sh 2 / Rev 0 / Modified by project W519 See drawings H-2-830105 through H-2-830109 for changes

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

Page 4 of 10

ECN 648330

Date 10/13/2000

~~Block 20~~ Other Affected Documents (Cont d).

H-2-88836 sh 3 / Rev 1 / Modified by project W519 See drawings H-2-830105 through
H-2-830109 for changes

H-2-140321 Sh 1 / Rev 1 / Modified by project W519 See drawings H-2-830093 for project
drawing listing

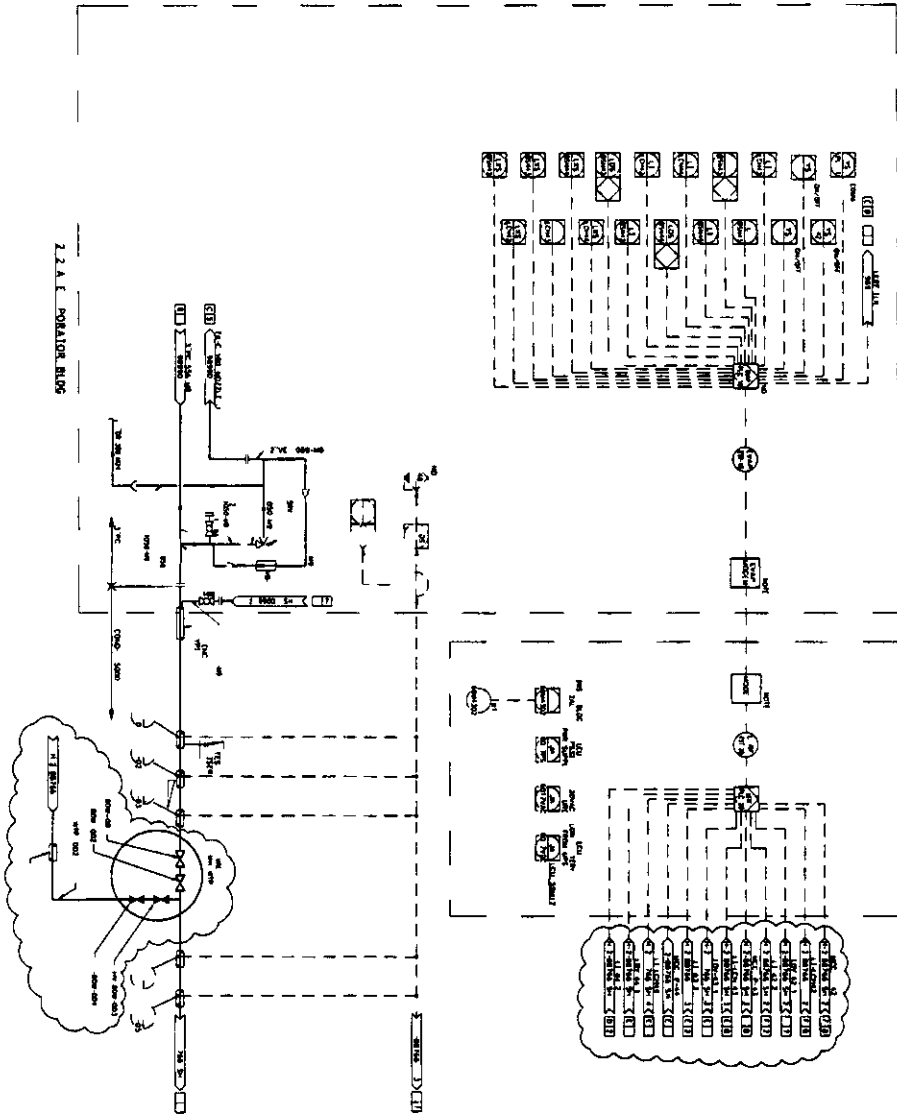
H-2-140323 Sh 1 / Rev 1 / Modified by project W519 See drawings H-2-830093 for project
drawing listing

H-2-140342 Sh 1 / Rev 2 / Modified by project W519 See drawings H-2-830093 for project
drawing listing The J line ties into the H line at N42281 5 W47238 6 at station
1+444 5

H-2-140377 Sh 1 / Rev 1 / Modified by project W519 See drawings H-2-830093 for project
drawing listing

ENGINEERING CHANGE NOTICE SKETCH

File #	Page and City	Name	Phone	State
H 2 88766	1 3	CI UHLMAN	Made Freedom 648330	5

224 E. POHAIOR. HILLS

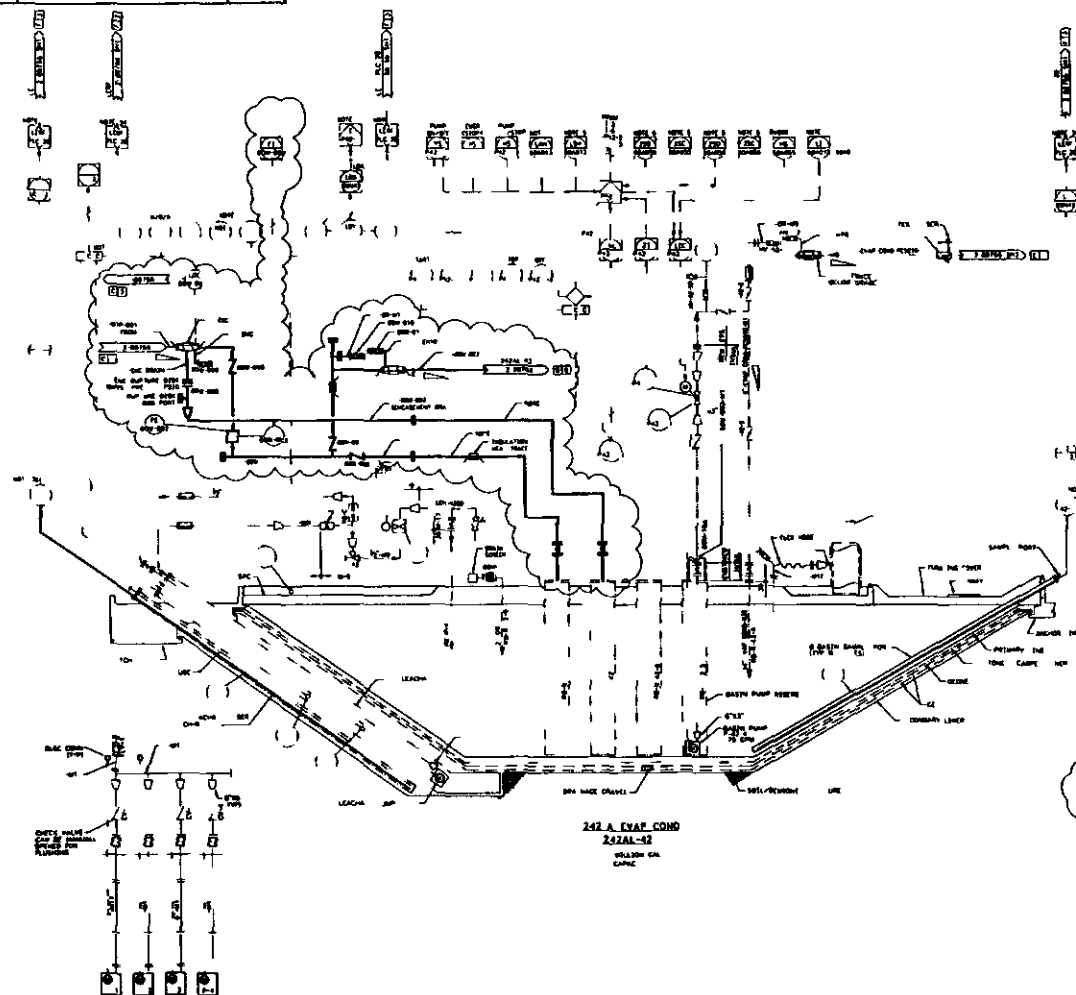
WITH IN ATTACHED AFTER ALL SHOW
ON

NOTES.

[illegible]

FLUOR FEDERAL SERVICES				ENGINEERING CHANGE NOTICE SKETCH			
Doc	Sn	Rev	Prepared By	Checked By	No	Page	
H 2 88766	2	5	C.L. UHLMAN	Mark Freedman	648330	6	

DD DR 1 288 S E1 CMS1 DED RE



NO. 1
THE NOTES SET OUT
SYMBOL LEGEND:
[Symbol] LOW BAY [Symbol] HIGH BAY

FLUOR FEDERAL SERVICES

ENGINEERING CHANGE NOTICE SKETCH

2 88766

Sh 3

or 6

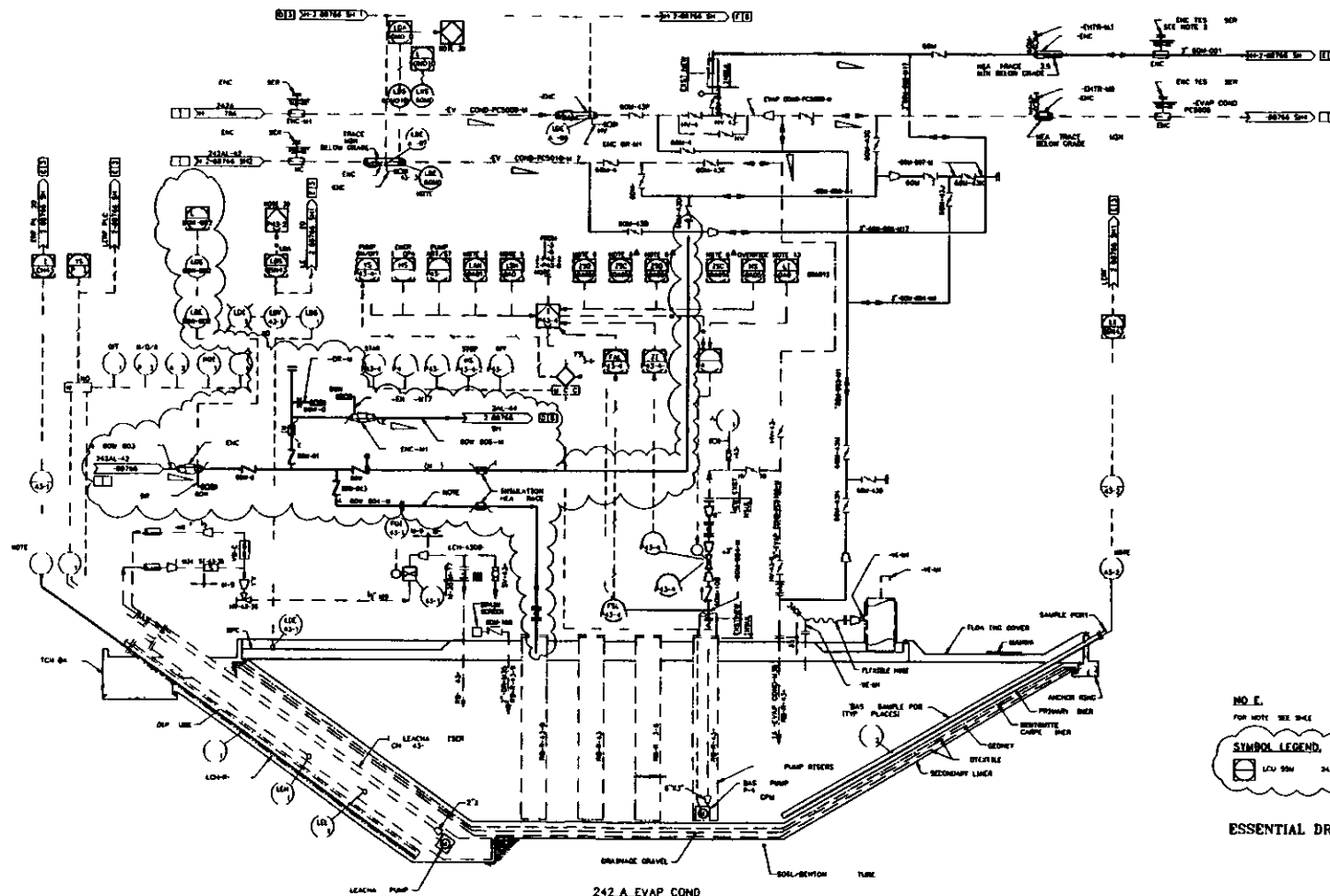
pared By
CL UHLMAN

hec ed By
Mark Friederich

No 648330

Page 7

ADD ITEMS IN CLOUDED AREA
AS SHOWN



NO. 1.

POP. 1000 SEE SHEET

SYMBOL LEGEND

LCU 1000 242A-1

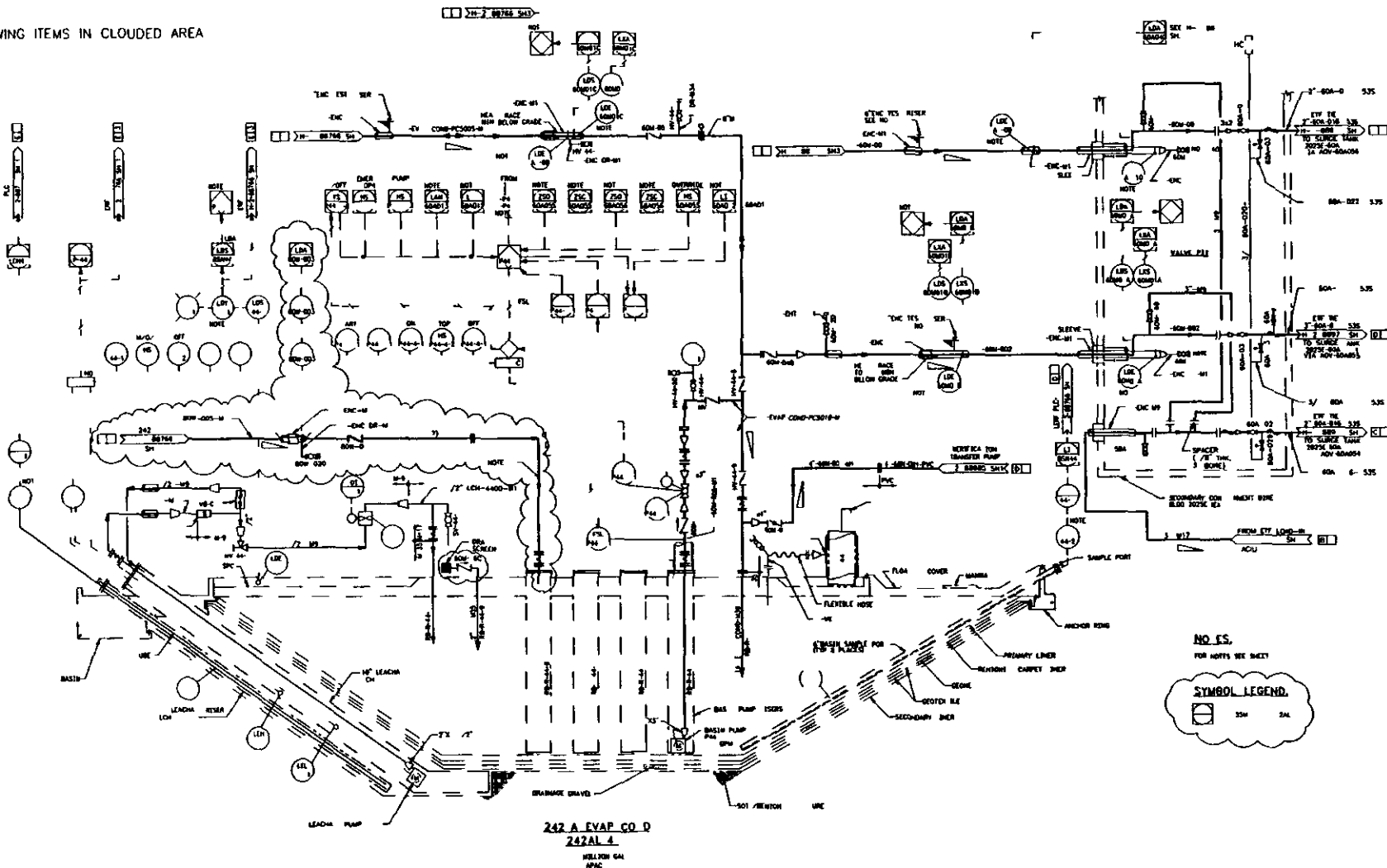
ESSENTIAL DRAWING

FLUOR FEDERAL SERVICES

ENGINEERING CHANGE NOTICE SKETCH

2-88766	Sh 4	ev 6	op co CL UHLMAN	Choc By Mark Friedland	CN No 648330	Page 8
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ADD TO DRAWING ITEMS IN CLOUDED AREA

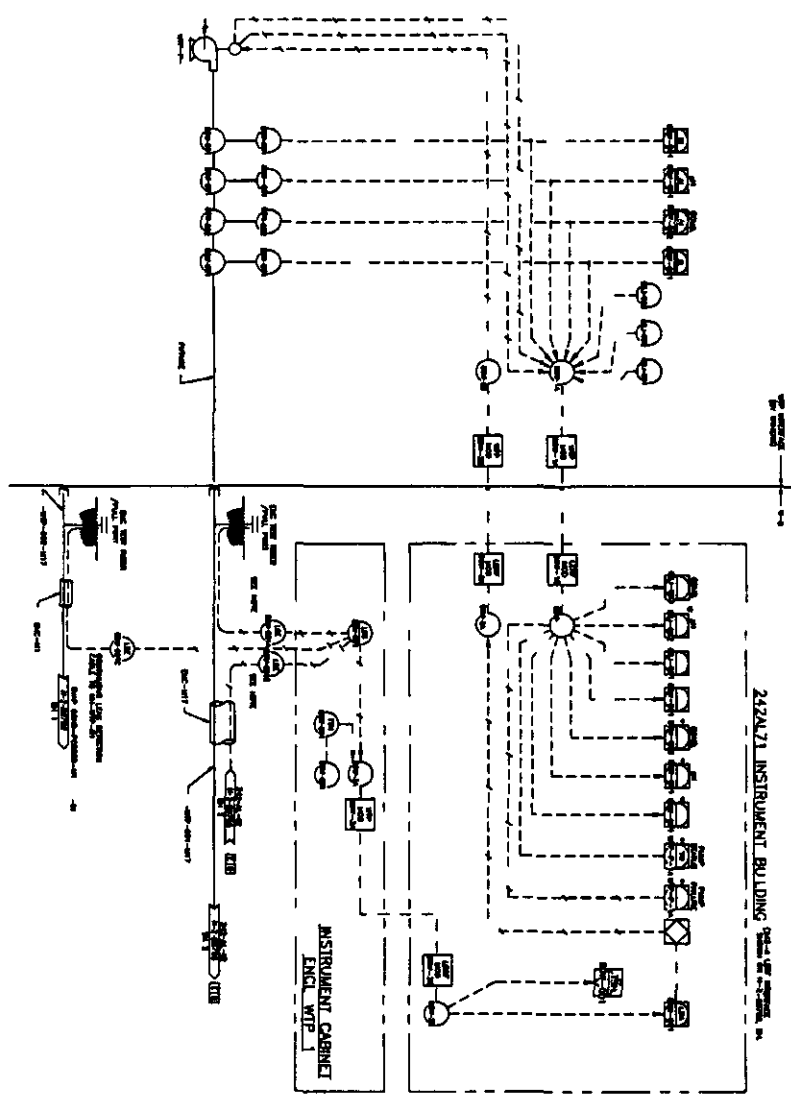


FLUOR FEDERAL SERVICES

ENGINEERING CHANGE NOTICE SKETCH

Drawn	Rev	Prepared By	Checked By	ECN No.	Page
2-88766	5	0	CL UHLMAN	648330	9
			Mark Funderburk		

SUPPERSEDES H 2 88766 SH 5
 NEW DRAWING TITLE
 PAID LERR WTP INTERFACE



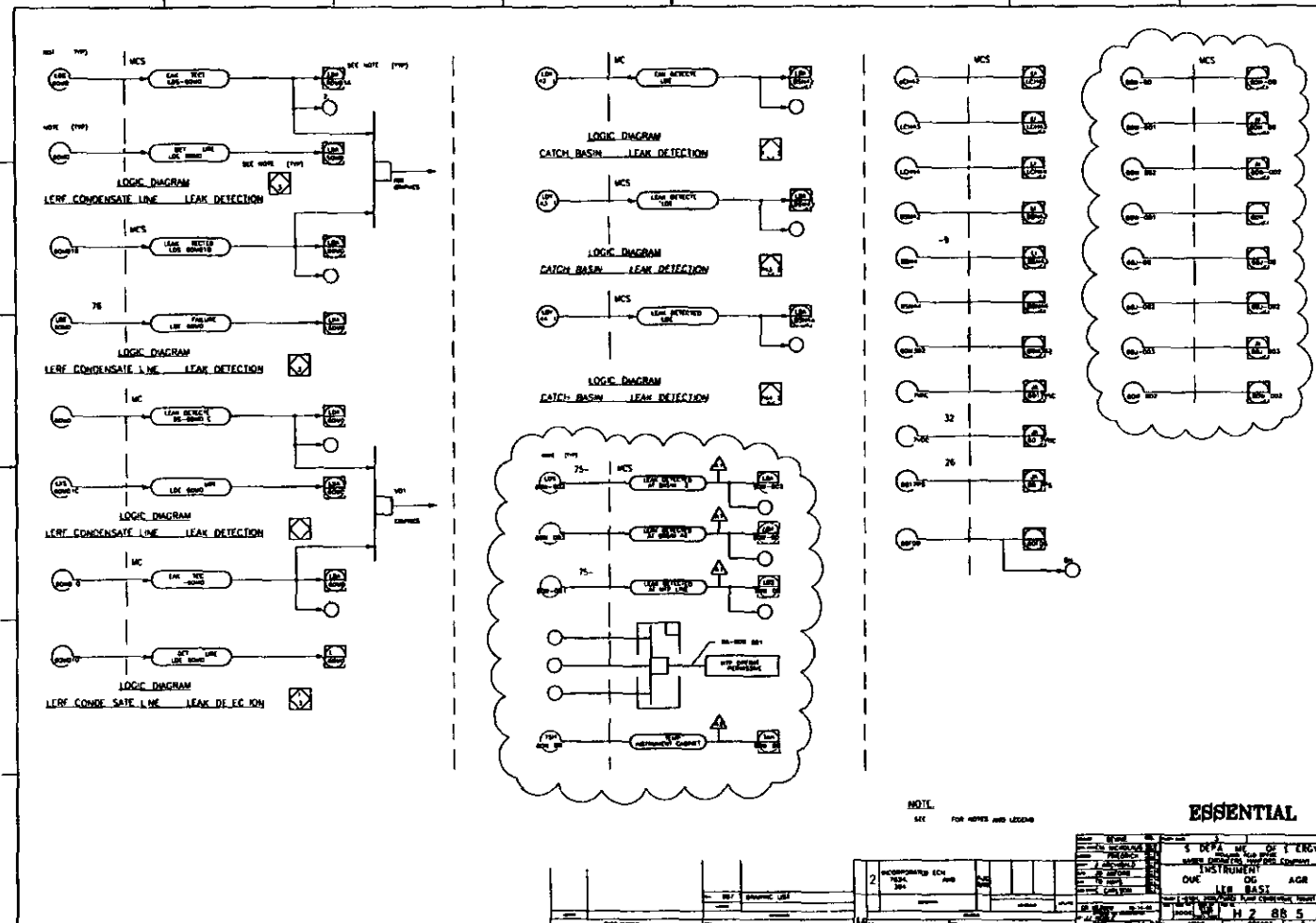
NOTE:
 THE WTP AND BUILDING CABLES ARE
 STANDARD LISTED
 300V 100' LONG
 (See also 242A/21-10000)

FLUOR FEDERAL SERVICES

ENGINEERING CHANGE NOTICE SKETCH

Doc	Sh	Rev	Issued	By	No	Page
H-2-88815	5	2	CL UHLMAN	Mark Friedland	648330	10

ADD CLOUDED AREAS TO
H-2 88815 (SHEET 5)



NOTES
SEE FOR NOTES AND LEGEND

ESSENTIAL

Rev	By	Date	Description	Rev	By	Date	Description
1	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION	2	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION
3	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION	4	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION
5	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION	6	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION
7	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION	8	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION
9	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION	10	CL UHLMAN	10/1/88	ISSUED FOR CONSTRUCTION

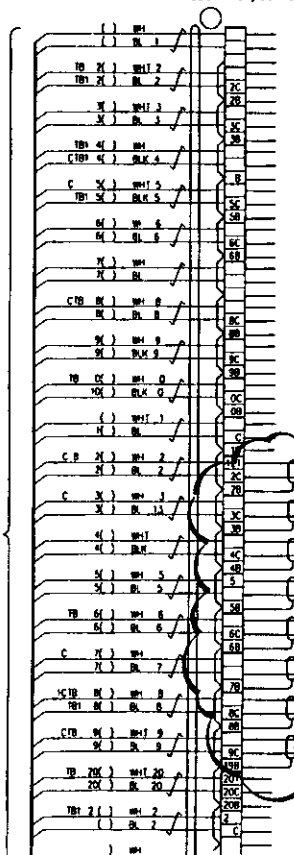
FLUOR FEDERAL SERVICES

ENGINEERING CHANGE NOTICE SKETCH

Desg	Sn	Rev	Prep	By	App'd By	No	Page
H-2 88836	3	1	CL UHLMAN	Mark Freedman		648330	11
H 2-88818	2	0					

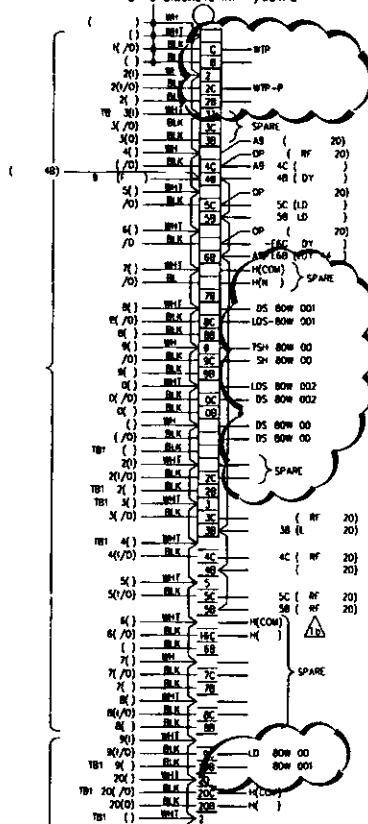
CHANGE H-2 88836
SH 3 ZONE 7D AS SHOWN

IS C
ANALOG INPUT / OUTPUT

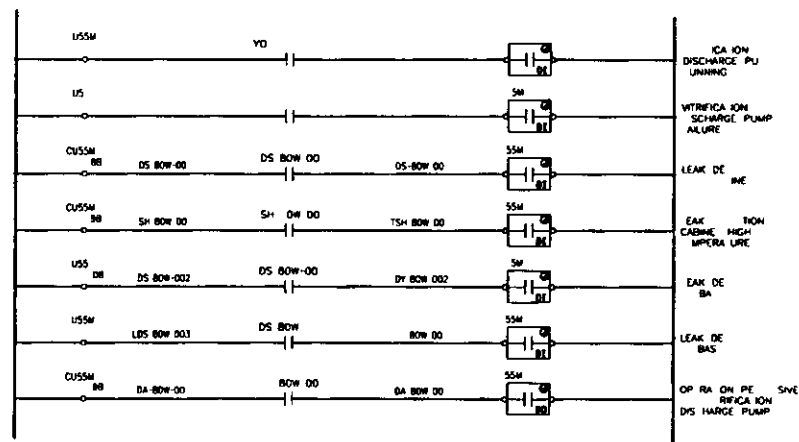


CHANGE H 2-88836 SH 3
ZONE 5E AND ZONE 3D AS SHOWN

IS E
DISCRETE INPUT / OUTPUT

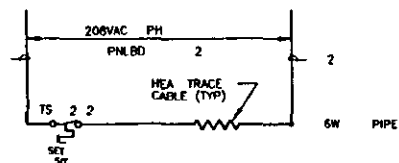


ADD TO H-2-88818 SH 2



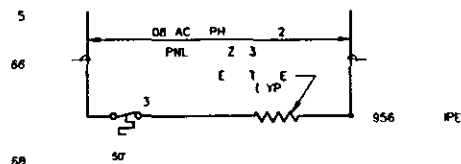
FLUOR FEDERAL SERVICES				ENGINEERING CHANGE NOTICE SKETCH		
Ref No	Sh	Rev	Prepared By	Checked By	648330	Page
H-2-79668	5	6	CL UHLMAN	Mark Friedland		12

ADD TO H 2 79688 SHEET 5)



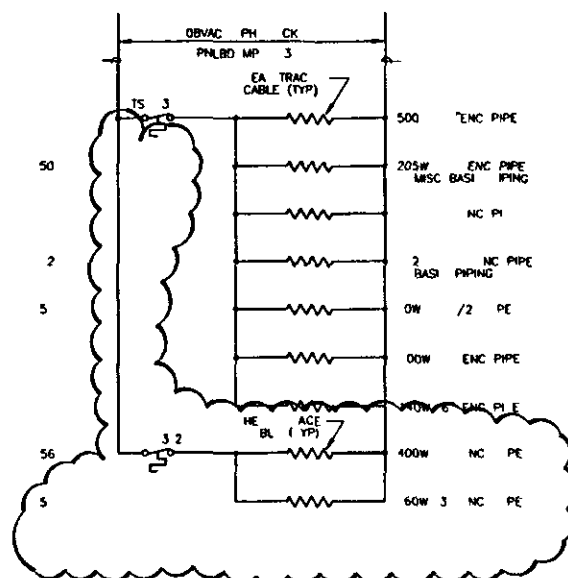
HEAT TRACE ELEMENTARY DIAGRAM
BASIN 242AL-42
(PRE WIRE NU B RS W)

MODIFY H 2-79688 SHEET 5 ZONE A4)



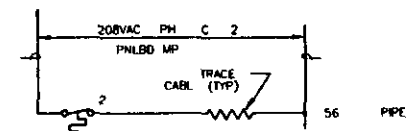
HEAT TRACE ELEMENTARY DIAGRAM
BASIN 242AL-43
(PREFIX WIRE NUMBERS WITH MPZ43)

MODIFY H-2-79688 SHEET 5 ZONE D4)



HEAT TRACE ELEMENTARY DIAGRAM
BASIN 242AL-43
(PR NU W)

ADD TO
(H 2-79668 SHEET 5)



HEAT TRACE ELEMENTARY DIAGRAM
BASIN 242AL-44
(PRE W NU BE W)

FLUOR FEDERAL SERVICES				ENGINEERING CHANGE NOTICE SKETCH			
Re Desg	Sh	ev	prepared By	checked By	CH No	Page	
H-2-85323	1	0	CL UHLMAN	Mark Friedman	648330	13	

ADD TO SHEET 1 OF H-2-85323 AS NOTED

ANELBOARD NUMBER	ORIGINATOR	SHEET NO	VOL	HAZ	OWNER SOURCE	DATE	DESCRIPTION	LOCATION	NOTES
W105 DP		2	80 /2	3	TRANS O E 300 (C633)	2 79663	2 2 AL	NEAR SERVICE ROAD NORTHWEST OF TENTO BASINS	
P2 2	NA	3	208Y/ 20	3	CB 2 2	2 9663	2 2 AL	T RETE 110 B SI 2 2AL 2 0 ELEC RICAL R C	
M 2 3	NA		208Y/ D	3	CB 3 2	2 6 3	2 2 AL	ETE O BAS 2 2AL 3 0 ELEC RICAL RAC	
P2	NA	5	2 8Y/ 20	3	CB 4 2	2 7 663	2 2 AL	E E B SI 2 2AL O ELEC RICAL RAC	
	NA	6	208Y/ 20	3	P ELBOARD W105 DP CRC T 8	H 2 9663	2 2 AL	LOCATED IN O E TIO S C ITY (O 269)	
LTG PANEL	NA		208Y/ 20	3	ANELBOARD P1 CR INT 26	H 2 9663	2 2 AL	LOCATED IN STORAGE BUILDINGS ON EAST WALK	
	NA	8	2 0/		CB 3	2 96 3	2 2 AL	LOCATED IN INS E T BUILDING 2 2AL O EAS AL	

ENGINEERING CHANGE NOTICE SKETCH

Re. Div.	Sh.	Rev.	prepared By	checked By	CN	Page
4-2-85323	3	2	CL UHLMAN	Mark Fendel	648330	14

ANE MF SQUAR				ANELBOARD MP FE FROM CB				OC IO AL TR AL RAC				VOL AGE 208 / 20VAC 3PH ONE LINE DWG NO 9663				FEEDE BRK TYPE GE 3402			
ANE TYPE (MOD) MP T2F				MA YP 3R SURFACE CLINT USH MOUNT				MAIN BREAKER UG ONL OP D BOTTOM				50 AMP BU 60 AMP NE GROUND BUS				ANELBOARD ROU AU PRO ION			
MAIN BR TYPE DO (NDARY) AL (PRIMARY)												DE BR RATING (MC) 000				INC (AC) 000 (ONDARY) 000 (PRIMARY)			
REMAR	SCHEME NUMBER	TT /		DAD DE CRPTION	SYS NO	KT						DA DESCRIPTION	TTS/H	SCHEME NUMBER	REMARK				
		PH	PH										PH						
		20		EA RACE							HEA RACE	B5			CIRCUITRY PRO TIVE DEVICE WITH 30mA CIRCUIT TRIP				
			20											460					
		DO		AHA FLOW							CONV RCP								
				AK LEVE DET THON							PIPE JUM HT TRACING RCPT								
			DO								BASIN COVE PUMP								
				DRU ARMOR OF RCPT							PARE								
			40																
	SUBT AL	20	20	AL TTTS PHASE 16.3 OTAL WATTS PHASE 802 AL WATTS PHASE 100 TO 4128							US AL	89	06	80					

ESSENTIAL DRAWING

U S DEPARTMENT OF ENERGY
DOE F d O R h
W l g d C m y

PANELBOARD SCHEDULE

SIZE B	BLDG NONE	NOMINR 304	NODWG NO H-2-85323	REV 2
SCALE NONE	ED 30	SHEET OF		

REV NO	DESCRIPTION	REV BY	CHK BY	DFT APPROV DATE	QC MC	OTHER	THESE
2	CO PO EO EC 65	BAM	1/00				

REV NO	DESCRIPTION	REV BY	CHK BY	DFT APPROV DATE	QC MC	OTHER	THESE
2	CO PO EO EC 65	BAM	1/00				

REV NO	DESCRIPTION	REV BY	CHK BY	DFT APPROV DATE	QC MC	OTHER	THESE
2	CO PO EO EC 65	BAM	1/00				

FLUOR FEDERAL SERVICES				ENGINEERING CHANGE NOTICE SKETCH			
Doc 4-2-85323	4	Rev 4	Prepared By CL UHLMAN	Revised By <i>Mark Friedman</i>	648330	90 15	

CHANGE AND ADD ITEMS AS NOTED IN CLOUDED AREAS BELOW
(H 2 85323 SHEET 4)

ANE SQUARE				ANE BOARD MP		LOCATION 2AL		RICAL RAC		VOL AG 208Y/ 0VAC 3PH 79663		FEEDS BRKR TYPE TED 402					
ANE TYPE (MODEL) MP				NEMA TYPE 3R		MAIN BREAK		60 AMP BUS		PANELBOARD GROUND		MAIN RCR ING (AC) 000 (SE ONDARY) 000 (PRIMARY)					
MA BRK TYPE 00 (E ONDARY) AL (PRIMARY)				RFAC MOUN		UG ONL		60 AMP NEUT		AUL PRO TION		FEEDS BRKR ING (AC) 000					
				SH MOUN		OP BOTTOM		GROUND BUS									
REMARK	SCHEME NUMB	HA /MP	PH	QA DESCRIPTION	SYS NO	NO	DA	NO	YS	NO	NO	QA DESCRIPTION	ITS/MP	SCHEME NUMBER	REMARK		
		500		HEA TRAC			20A		2			EA RACE	75			DUPLICATE PROTECTIVE DEVICE 300MA ROUNDO FAUL	
		500		EACHA FLOW			5A		5A			TC CONV RC		60			
		00		EAK EVE DE TION			5A		5A			PIPE JUMPE HT RACHN ROP					
		00		BASH COVER PUMP		9A	20A		5A			HEA ACE	52				
				DRUM WARME OF RCPT		9B	5A							25			
SUBT A				600		48		TO AL WATTS PHASE 2578				SUBT AL		50		985	
								AL WATTS PHASE 3235									
								TOTAL WATTS PHASE 1122									
								TAL 7108									

OR FIELD VE SPEC TION ST BUS SEE

ESSENTIAL DRAWING

DRAWN	WJ BENDIE	DATE	7
HE ED			
DFTG APVD			
CDG NGR			
APPVD			
APPVD			

U S DEPARTMENT OF ENERGY			
DOE F d o i R h m			
W g			
PANELBOARD SCHEDULE			
SIZE	BLOC NO	DATE	NOTING NO
B	AL	304	H-2-85323
SCALE NON			ED 70 30
SHEET			OF

4	ORPOR ED EC 65 9 6	B M /00
REV NO	DESCRIPTION	REV CHW
		DATE DA
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		DOG YGR
		OTHE APPROVAL BY/DA
		THEN
		APPVD
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HE USED ON	ADFILE	ADCODE
2480025		

PRINT	COMME PRINT
<input type="checkbox"/>	<input type="checkbox"/>

ENGINEERING CHANGE NOTICE SKETCH

Ref Dwg	Sh	Rev	prepared By	checked By	QA
4-2-85323	5	2	CL UHLMAN	Moh Friedland	648330

CHANGE AND ADD ITEMS AS NOTED IN CLOUDED AREAS BELOW
(H 2-85323 SHEET 5)

[illegible]

FLUOR FEDERAL SERVICES				ENGINEERING CHANGE NOTICE SKETCH			
Re Dwg	Re	Issued By	Revised By	No	Page		
H-2-85323	1	0	CL UHLMAN	Mark Friedland	648330	17	

ADD NEW SHEET 8 TO H-2-85323

IF NEW SHEET IS REQUIRED CHANGE SHEET NUMBER ON SHEET 1 TO READ 1 OF 8

PANEL TQ SQUARE D				PANELBOARD				LOCATION INS RUMENT B DG 2 2AL7				VOLTAGE 20/2 0VAC PH 3				FEEDER BR R TYPE SO E D 000							
P E PE (MODEL) NOOD				FED FROM CB 3 1								ONE LINE DWG NO 2 79663				MAN B RA ING (C) BD							
BR TY E BD				EMA TYPE				<input type="checkbox"/> AL BREA E <input type="checkbox"/> LUGS O <input type="checkbox"/> TOP <input type="checkbox"/> BOTTOM FEED				<input type="checkbox"/> P BUS <input type="checkbox"/> EUT <input type="checkbox"/> G OUND BUS				<input type="checkbox"/> PANELBOARD GROU D <input type="checkbox"/> FAUL RO ECTION <input type="checkbox"/> OT ER				FEEDER BRKR RATING (AC)			
E S		SCHE E NUMBER		S/		LOAD DESCR TIO		SYS NO		CKT NO		C T NO		SYS NO		LOAD DESCRIPTION		TTS / P		SC E E NU BE		REMA S	
				PH PH B														PH PH B					
				8		AC						20A		20A		EUM		300					
												20A		20A		EUM				300			
						GH S				5		20A		20A		RECEP ACLES		20					
				00		LC PS POWER						20A		20A		PLC 20				80			
				250		C POWER				9		20A		20A		LC U LTY		80					
						S E						20A		2		S E							
						SPAC				3						SPACE							
						ACE										S E							
SU I TAL		3177		32																			

ATTACHMENT B AUTHORIZATION BASES REVIEW FORM

P 18
ECN 648330

Part A

REFERENCE ITEM # ECN 648330

Proposed Change/Discovery
(check one)

APPROVAL DESIGNATOR E.T

TITLE Install Effluent Transfer Lines For Future Waste Treatment Plant (W519 Project)

DESCRIPTION

Effluent transfer lines will be installed to transport liquid waste from the Waste Treatment Plant (yet to be built) to LWPF. Three transfer lines will be installed. Two lines for the radioactive/hazardous liquid waste transporting to LERF basins. One line for the non rad/non hazardous waste transporting to the TEDF system.

[Signature] 10-20-00
Originator Signature Date

Part B

Does the referenced item

(check one)

- | | | |
|---|--|---|
| A | Increase risk from a hazard to the workers &/or public beyond that previously analyzed, evaluated and documented in the Authorization Bases? | NO <input checked="" type="checkbox"/> Yes/Maybe <input type="checkbox"/> |
| B | Reduce the reliability or effectiveness of features, controls, procedures or processes used to mitigate hazards? | NO <input checked="" type="checkbox"/> Yes/Maybe <input type="checkbox"/> |
| C | Introduce a hazard not evaluated in the Authorization Bases? | NO <input checked="" type="checkbox"/> Yes/Maybe <input type="checkbox"/> |
| D | Reflect new information on existing hazards beyond that currently documented in the Authorization Bases? | NO <input checked="" type="checkbox"/> Yes/Maybe <input type="checkbox"/> |

DETERMINATION BASES Record complete justification and reference information below. Use Attachment 3 for continuations. Maintain with submittal package.

Since the new effluent transfer lines will be capped and isolated from waste sources, installation of these lines does not result in a configuration outside of the existing authorization basis identified within the ASA (HNF-SD LEF-ASA-002) and the Liquid Effluent Retention Facility Hazard Categorization Report (WHC-SD-LEF-HC-001). The authorization basis documents will be reviewed as part of the effort to support the connection to the future Waste Treatment Plant. Additionally, the waste to be introduced will be evaluated per WMH 331 Section 3.11 New Waste Stream Acceptance at LERF/ETF, which ensures the criteria set in LERF ASA are not exceeded as result of introducing the new feed.

Potential Impact	No Impact
Item Remains Open	ABR Closed

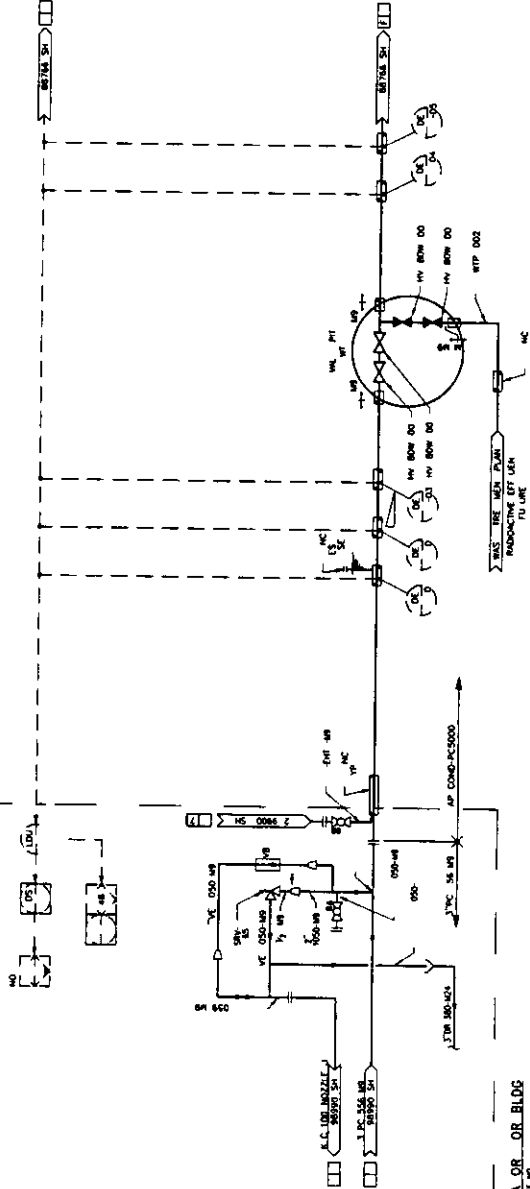
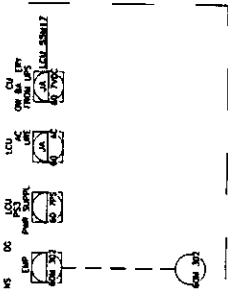
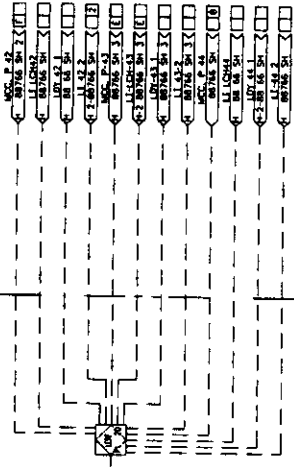
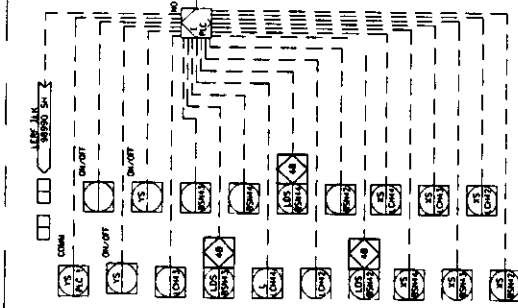
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[Signature] 10-20-00
Authorization Bases Evaluator Date

<input type="checkbox"/>	<input checked="" type="checkbox"/>
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LWPF OSE Team Leader Date

2.2 LVL INSTRUMENT BUILDING



2.2 F A OR OR BLOC
SEE NO

NOTES

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ESSENTIAL DRAWING

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1						ISSUED FOR CONSTRUCTION
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ESSENTIAL

ENGINEERING CHANGE NOTICE

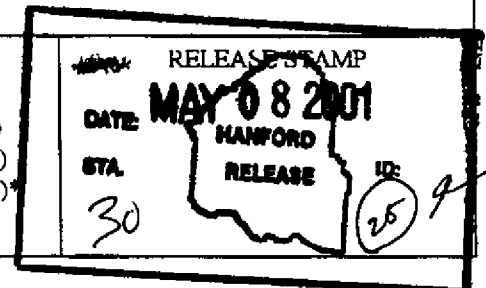
1 ECN 658555

CPR 18, 13A, 13B

Page 1 of 19

Proj.
ECN

2 ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedeure <input type="checkbox"/> Cancel/V d <input type="checkbox"/>	3 Originator Name, Organization, MSIN and Telephone N AF Crane 32910 S6 72, 372 3152	4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N	5 Date 04/25/01
	6 Project Title/N /Work Order No Annulus Air Purge/CACN 101697 COA AJ60	7 Bldg./Sys./Tat. No 2025E/1D/ETF	8 Approval Designator E T, R
	9 Document Numbers Changed by this ECN (includes sheet no. and re) See Block 13a	10 Related ECN N () 658563	11 Related PO No N/A
12 Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> N (NA Blk. 12b, 12 12d)	12b Work Package N EL 00 00651/M	12c Modification Work Complete Design Authority/Cog. Engineer Signature & Date	12d Restored to Original Condition (Temp or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date
13a Description of Change Block 9 Document Numbers Changed by this ECN (cont) 4/25/01 II 2 88766 Sh 1 Rev 4 II 2 88766 Sh 2 Rev 5 II 2 88766 Sh 3 Rev 6 II 2 88766 Sh 4 Rev 6 II 2 817974 Sh 1 Rev 12 This ECN provides installation of an air purge system for the 3 M 17 pipeline between the Load in Station containment sump and the Surge containment sump as well as lines 3 60M 001 M17 and 4 60M-002 M17. The change installs connections between the instrument air junction box (AJB 1) and the respective line a, well as providing a flow path for the air purge to escape to atmosphere in each of the respective lines for the purpose of eliminating condensation in the piping annulus. Piping fittings and jointing methods shall meet the requirements for Pipe Codes 153 and 1531 identified in the Project C 018 Pipe Class Specifications (S 136H 001) except gasketing shall be in accordance with Pipe Code M 17 requirements identified in the 200 Area ETF Collection System Construction Specification (C 018H L6). Install, inspect and test the new installation in accordance with ASME B31.1 and Addenda.			
13b Design Baseline Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N			
14a Justification (mark on) Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As Found <input type="checkbox"/> Facilitate Const. <input type="checkbox"/> Const. Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>			
14b Justification Detail Piping changes were needed to install an air purge system to eliminate spurious alarm caused by condensation in the piping annulus.			
15 Distribution (List name, MSIN and no. of copies) KH Bergsman S6 72 (1) LI Huth S6 72 (1) RW Szelmezcza S6 72 (1) MW Bowman S6 72 (1) R Mabry S6 71 (1) MJ Warn S6 72 (1) AF Crane S6 72 (1)* BA Messinger B4 3 (1)* RH Wight S6 72 (1) DL Flyckt S6 71 (1) CD Skogley S6 72 (1) WCC Planning S6 71 (1)* JMI dell B4 3 (1)* NJ Sullivan S6 72 (1) (* = Advance Copy)			



1 ECN 658555

16 Design Verification Required	17 Cost Impact → NA ← ENGINEERING CONSTRUCTION	18 Scheduled Impact (days) → NA ←	
[x] Yes [] N	Additional \$ Savings \$	Improvement \$ Delay \$	
19 Change Impact Review Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13 Enter the affected document number in Block 20			
DD/DD	[NA]	Schedule/Stress Analysis [NA]	
Final Design Criteria	[NA]	Stream/Design Report [NA]	
Operating Specification	[NA]	Interface Control Drawing [NA]	
Criticality Specification	[NA]	Calibration Procedure [NA]	
Conceptual Design Report	[NA]	Installation Procedure [NA]	
Equipment Spec	[NA]	Maintenance Procedure [NA]	
Test Spec	[NA]	Engineering Procedure [NA]	
Process Element Spec	[NA]	Operating Instruction [NA]	
Vessel Fabrication	[X]	Operating Procedure [X]	
Weld Manual	[NA]	Operational Safety Requirement [NA]	
FSAR AR	[NA]	IEFD Drawing [NA]	
Safety Equipment List	[NA]	Control Arrangement Drawing [NA]	
Radiation Work Permit	[NA]	Essential Material Specifications [NA]	
Environmental Impact Statement	[NA]	Facility Siting Schedule [NA]	
Environmental Report	[NA]	Licensing Plan [NA]	
Environmental Permit	[NA]	Inventory Adjustment Request [NA]	
Tank Calibration Manual	[NA]		
Health Physics Procedure	[NA]		
Spares Inventory Listing	[NA]		
Test Procedures/Specification	[NA]		
Component Index	[X]		
ASME Coded Item	[NA]		
Human Factors Consideration	[NA]		
Computer Software	[NA]		
Electrical Circuit Schedule	[NA]		
ICRB Procedure	[NA]		
Process Control Manual/Plan	[NA]		
Process Flow Chart	[NA]		
Purchase Requisition	[NA]		
Tickler File	[NA]		
20 Other Affected Document (NOTE: Document listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below			
Document Number/Revision	Document Number/Revision	Document Number/Revision	
IOP-30-001	INF SD ETR OCD-001 Rev 6		
POP-59A-001	POP-60M-003 Rev 6		
21 Approval			
Signature	Date	Signature Date	
Design Authority AEC	4/25/01	Design Agent	
Chief Engineer		PE	
Col. Mgr. N. Sullivan	4-26-01	QA	
QA		Safety	
Safety		Design	
Engr. RWS Imozka	5-1-01	Environment	
Other LL team lead	4-26-01	Other	
Formal Design Review			
Rad. Con. R Mahry	8/11/01		
DEPARTMENT OF ENERGY			
Signature or Control Number that tracks the Approval Signature			
ADDITIONAL			

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

ECN 658555

Page 3 of 19

Dat 04/25/01

Block 13a (continued)

H 2-88766 SH 1 Zone E/F 1/2 Add text to Notes 3 4 & 9

H 2 88766 SH 2 Zone E 4 Add reference to Note 3 Remove blind flange from valve HV-42 15

H 2 88766 SH 3 Zone E 5 Add reference to Note 3 Remove blind flange from valve HV-43 2

H 2-88766 SH 3 Zone E-6 Add reference to Note 3 Remove blind flange from valve HV-43 13

H 2 88766 SH 3 Zone F 3 Add reference to Note 3 Remove cap & blind flange from valves HV-43 15 & 60M 12C

H 2 88766 SH 4 Zone B 1/2 Add detail with reference to Note 4

H 2 88766 SH 4 Zone D 2 Add material break & connections associated with Zone B 1/2 detail with reference to Note 3 associated with valves 60M 14E & 59A-018

H 2 88766 SH 4 Zone F 2 Add material break & connections associated with Zone B 1/2 detail with reference to Note 3 associated with valve 60M 14D

H 2 817974 SH 1 Zone B 2 Change valve 59A 016 to normally closed & add 3/4 SS tubing vent line

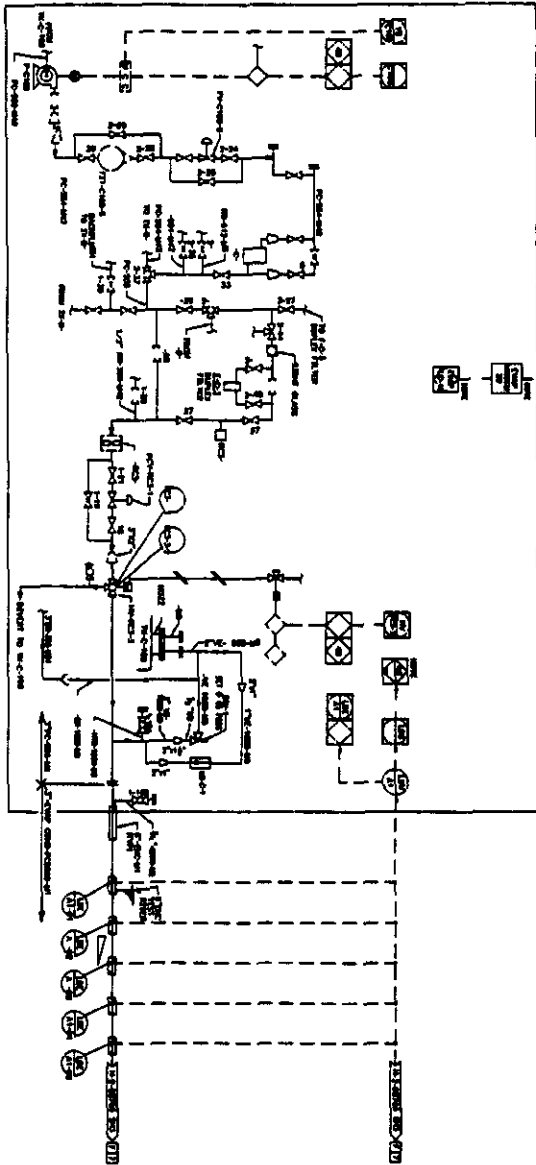
H 2 817974 SH 1 Zone B/C 4 Change valves 59A-013 & 59A-014 to normally closed

H 2 817974 SH 1 Zone B/C 6 Change valve 59A 011 to normally closed

Bolting for flanged joints shall be in accordance with Pipe Code M 17 requirements identified in the 200 Area ETF Collection System Construction Specification (C 018H C6)

Fibercast Company one of the manufacturers of the M 17 piping has identified the maximum allowable air pressure in the piping annulus is 15 psig and recommends 5 psig be utilized for the air purge While no shielding is recommended for exposed piping with ≤ 15 psig air pressure as there is not enough energy contained to present a safety hazard to personnel the existing insulation will provide impact protection against external forces and restraint in the event of a bonded fitting failure This information is per telephone conversations with Nathan Culberson and Craig Moore of the Fibercast Company Ameron the other manufacturer of M 17 piping concurred with the Fibercast Company recommendations per a telephone conversation with Hector Mercado

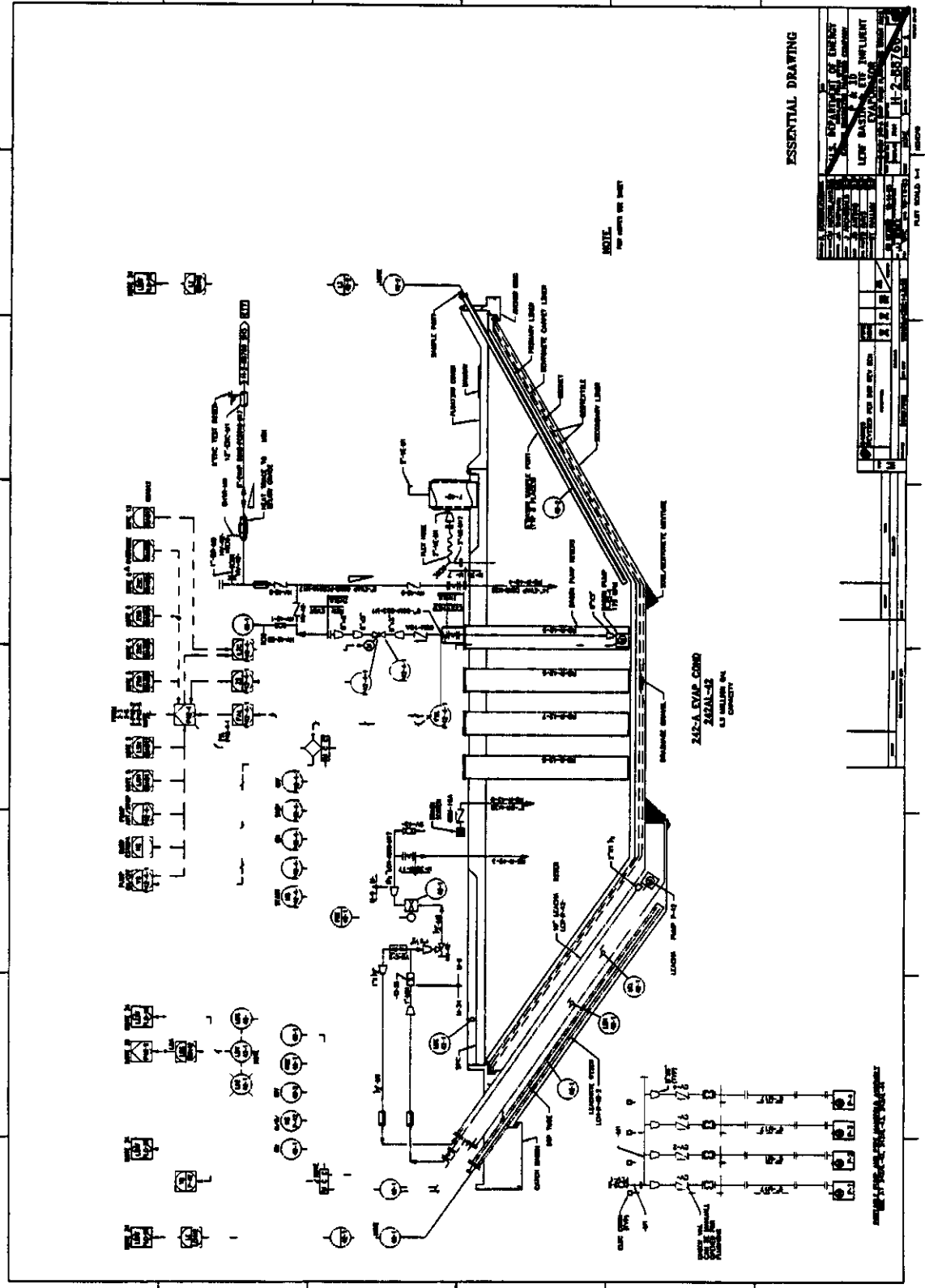
Hanford NEPA Screening Form <small>F NEPA requirements e (IN) PRO 452</small> <small>Answer questions YES NO and list NUMBER if ppl abli</small>	
Work Item Title	Annulus Air Purge
Work Package Number	EL 00 : 00651 / M
Project Description (please limit to 6 lines)	<p>The change installs connections between the instrument air junction box (AJB-1) and underground piping as well as providing a flow path for the air purge to escape to atmosphere in each of the respective lines for the purpose of eliminating condensation in the piping annulus</p>
A	INTEGRAL ELEMENTS <input type="radio"/> Yes <input checked="" type="radio"/> No Will work threaten to violate environmental law regulations permits or safety requirements? <input type="radio"/> Yes <input checked="" type="radio"/> No Will work involve construction/ expansion of waste treatment, storage, disposal facilities? <input type="radio"/> Yes <input checked="" type="radio"/> No Will hazardous materials be disturbed during uncontrolled/unpermitted releases? 13
B	ECOLOGICAL RESOURCES <input type="radio"/> Yes <input checked="" type="radio"/> No Will work affect Wetlands/Aquifers/ALE Reserve? <input type="radio"/> Yes <input checked="" type="radio"/> No Will work occur within 1/4 mile of Columbia River (Hanford Reach National Monument)? <input type="radio"/> Yes <input checked="" type="radio"/> No Will wildlife habitat be disturbed? If all answers are NO If any answer is YES get Ecological Review NUMBER <u>N/A</u> then
C	CULTURAL RESOURCES <input type="radio"/> Yes <input checked="" type="radio"/> No Does the work require excavation or disturbance of values? Obtain permit if required. <input type="radio"/> Yes <input checked="" type="radio"/> No Does the work require building or equipment modification to listed historic structures? If all answers are NO and all conditions have been met the SWCX applies If any answer is YES Cultural Resources Review is required. Last review NUMBER <u>N/A</u> NOTE If adverse impacts are identified
D	SITE WIDE CATEGORICAL EXCLUSION (SWCX) <input type="radio"/> Yes <input checked="" type="radio"/> No Involuntary permanent environmental impacts will be minimized or considered? See (IN) PRO 462 <input checked="" type="radio"/> Yes <input type="radio"/> No Is the work covered by SWCX? If YES list SWCX that applies <u>B2.5</u> print form and sign IF NO
E	SITE WIDE CX DOES NOT APPLY <input type="radio"/> Yes <input checked="" type="radio"/> No Does the DOE approved NEPA documentation apply fully to this study? If yes provide project identification number DOE/EA <u>N/A</u> DOE/EIS <u>N/A</u> Other <u>N/A</u> If CX EA preparation may be needed contact HES 376 4373
Signature Review <u>[Signature]</u> PI <u>372-3152</u> <small>(Initiate, Check, Eng, Scheduler, Planner)</small> Concurrent <u>[Signature]</u> D <u>4/24/01</u> <small>(Manager, Engineer, Compliance, Office Files)</small>	
<div style="float: right; text-align: right; font-size: small;"> SWCX is to be used until any applicable Categorical/ Ecological Resource Review is received and attached to this form SWCX cannot be used if the activity is part of a project under review in an EA/EIS MAINTAIN A COPY IN THE APPLICABLE PROJECT FILE OR WORK PACKAGE </div> <div style="clear: both;"></div>	

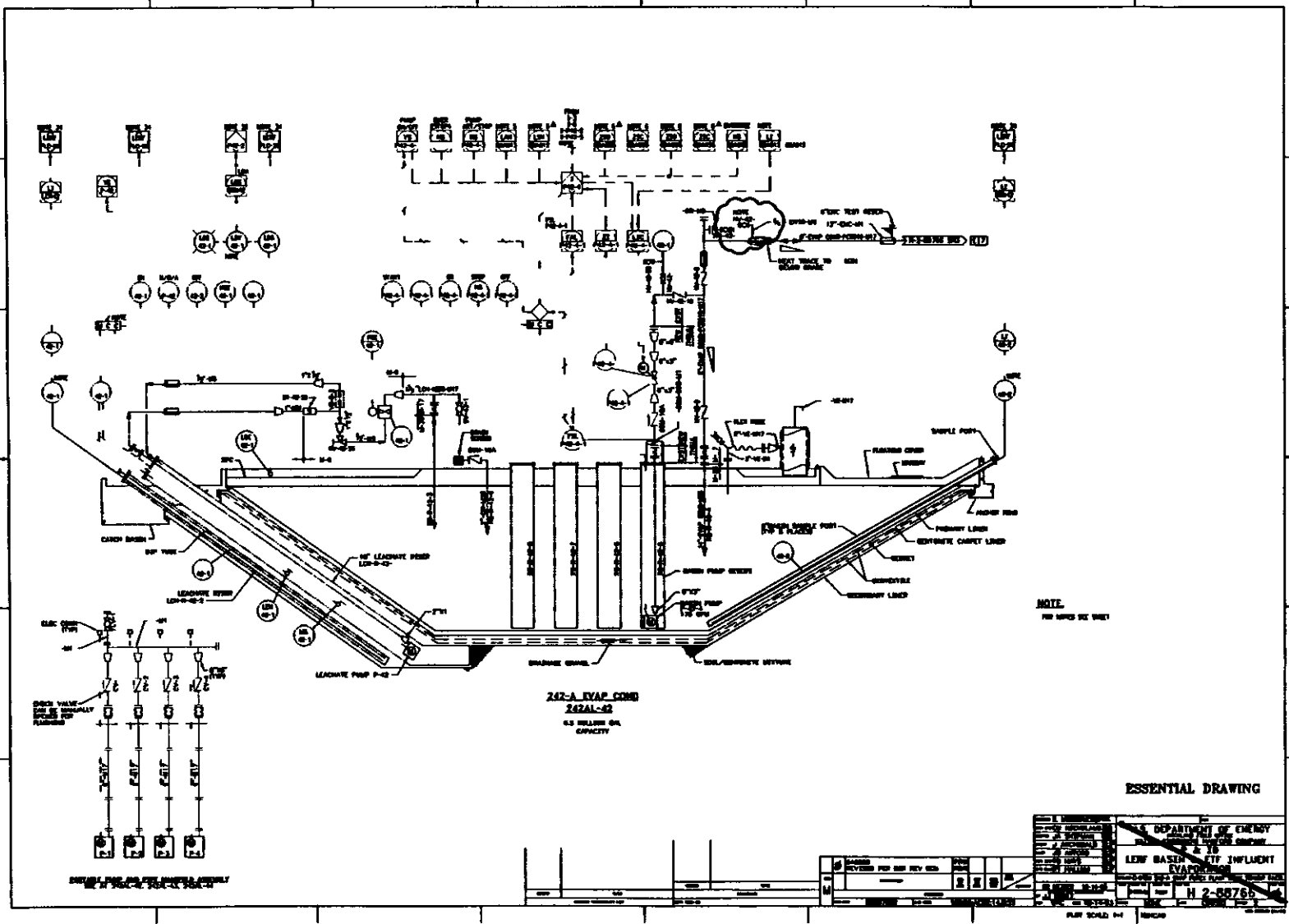
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UNITED STATES OF AMERICA
 DEPARTMENT OF ENERGY
 OFFICE OF ENERGY
 GENERAL INVESTIGATIVE DIVISION
 FEDERAL BUREAU OF INVESTIGATION
 WASHINGTON, D.C. 20535
 DATE
 TIME
 BY
 REASON
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 H-2-6076
 FBI/DOE

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ECN 658555 PG 1 of 2
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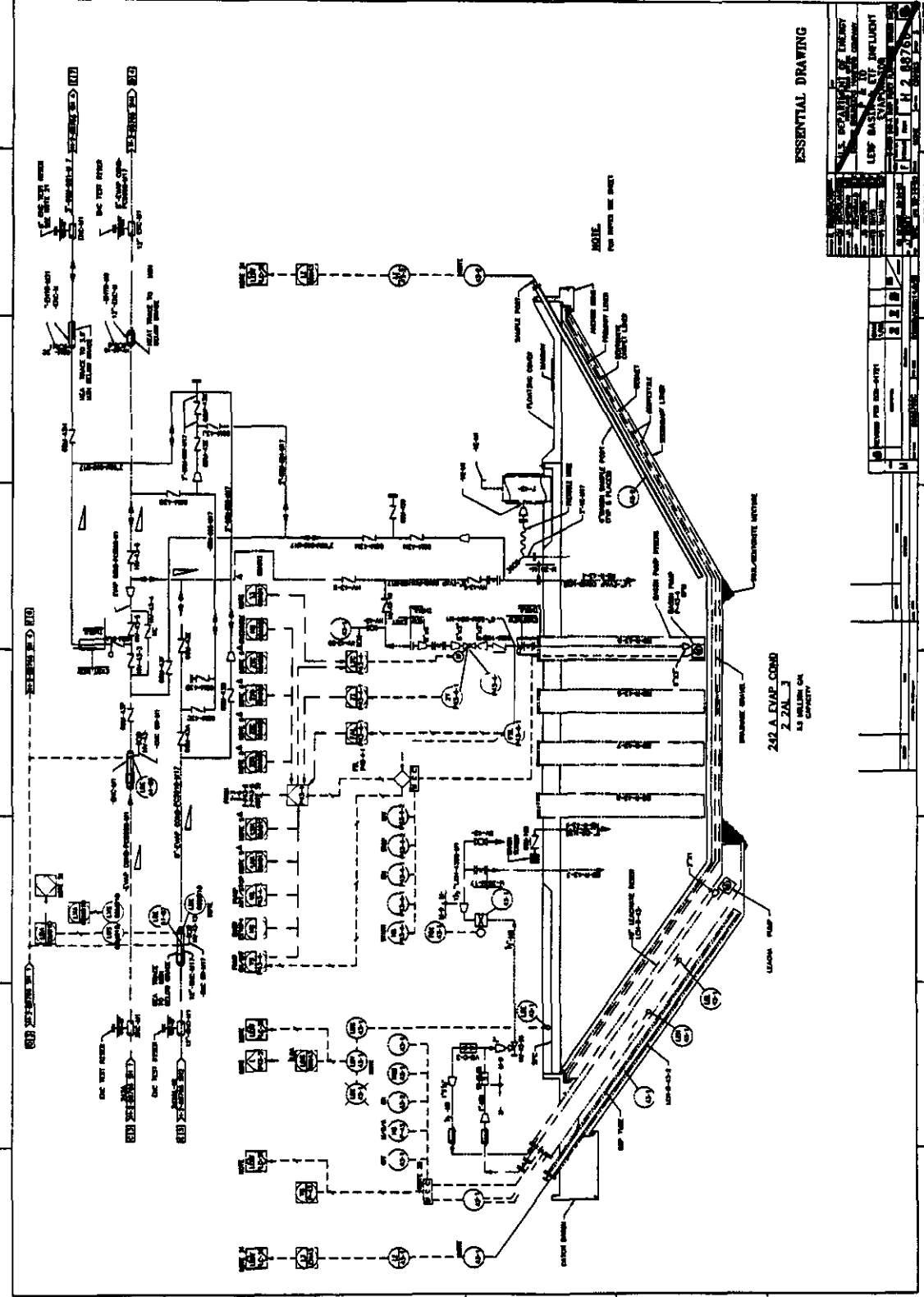




ECN 658555 P2 of 9
H 2 88766 SH 2

ESSENTIAL DRAWING

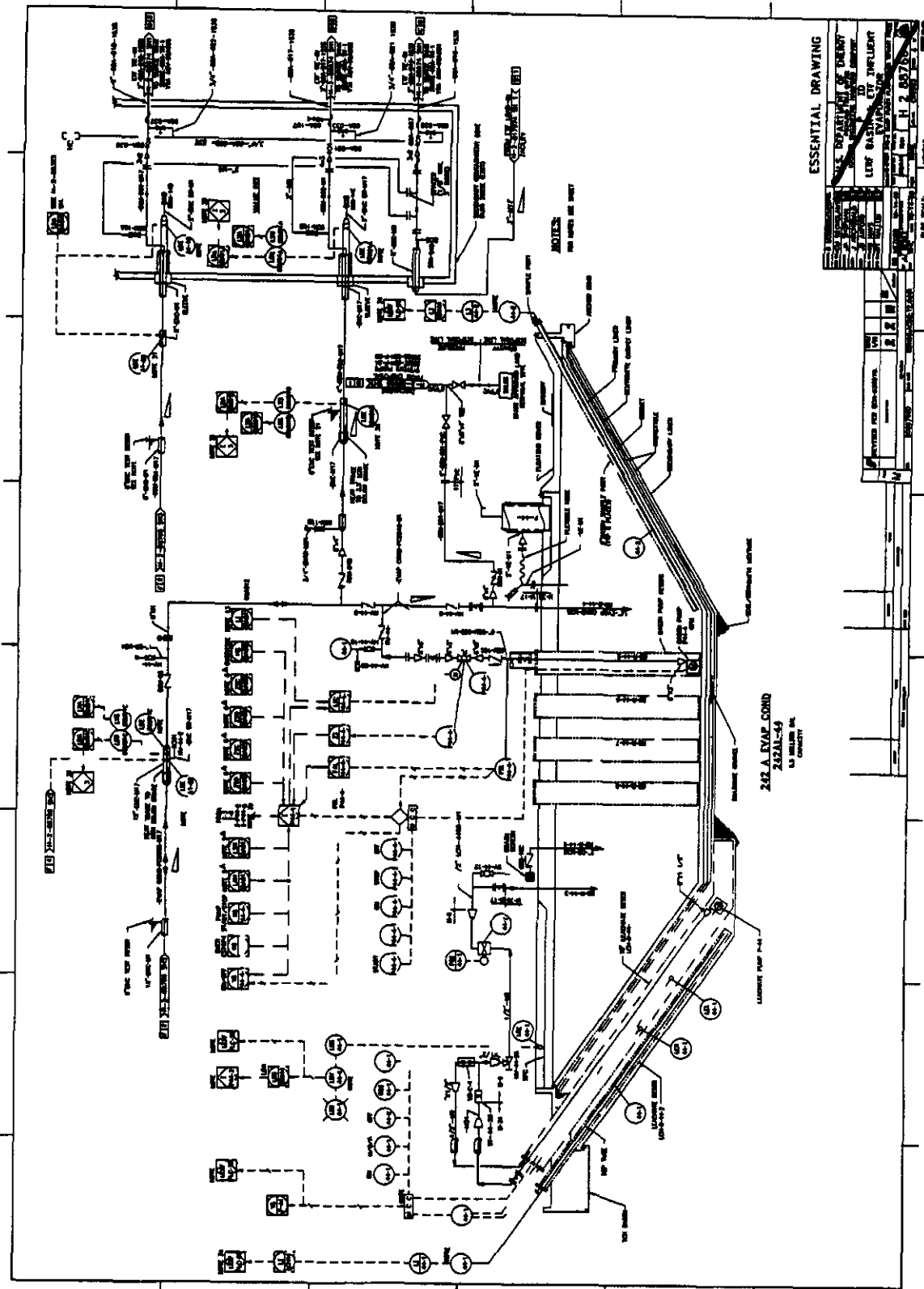
ECN 658555 pg 9 of 1
1 2 88 66 SH 3



ESSENTIAL DRAWING

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DATE 12/88		BY 66 SH 3	
PROJECT NO. 658555		SHEET NO. 9	
DRAWING NO. 658555-9		SCALE 1/2" = 1'-0"	

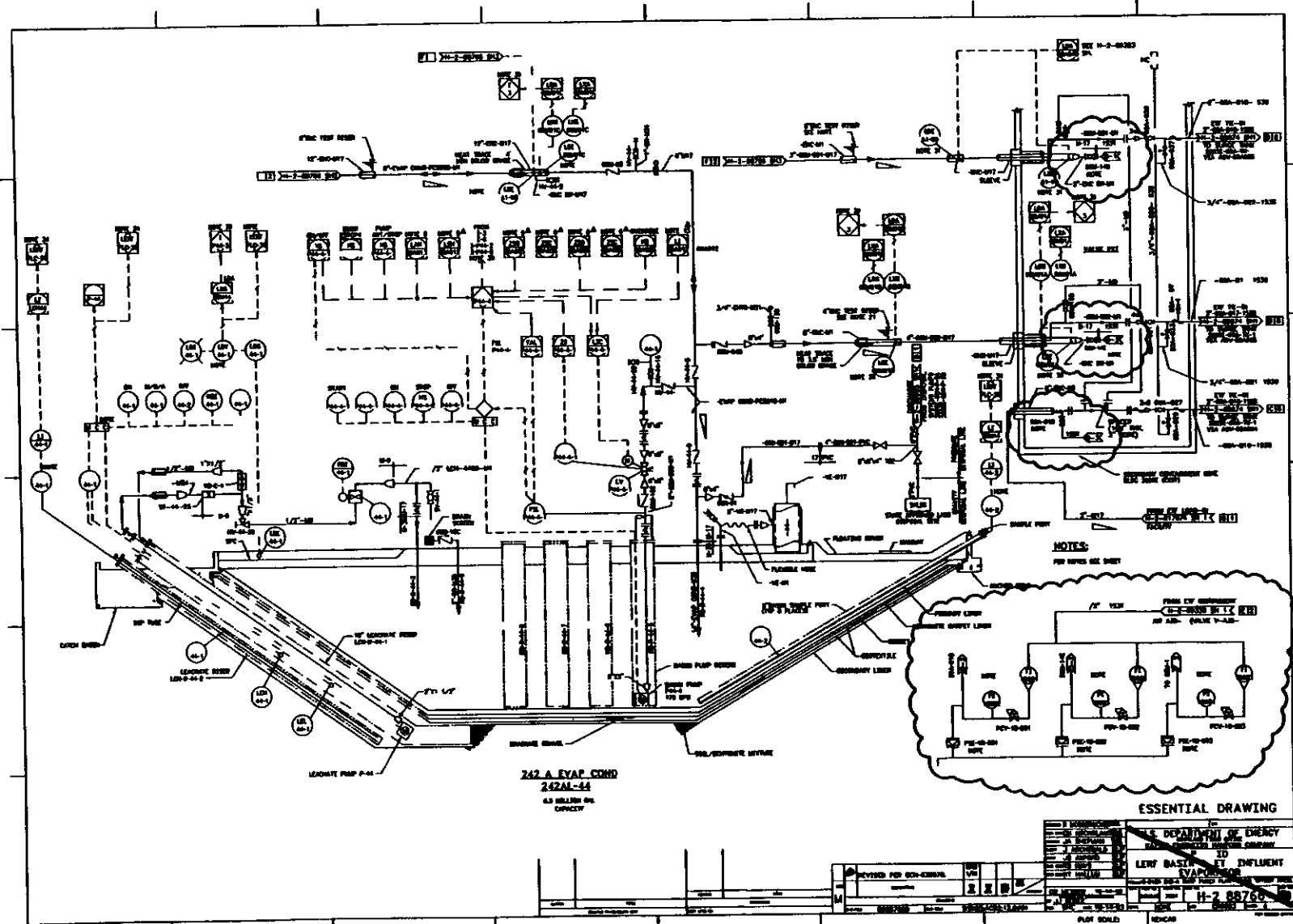
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5.0 MILLION GALS
CAPACITY



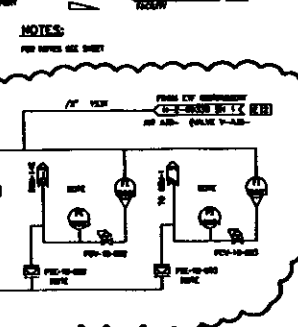
ESSENTIAL DRAWING

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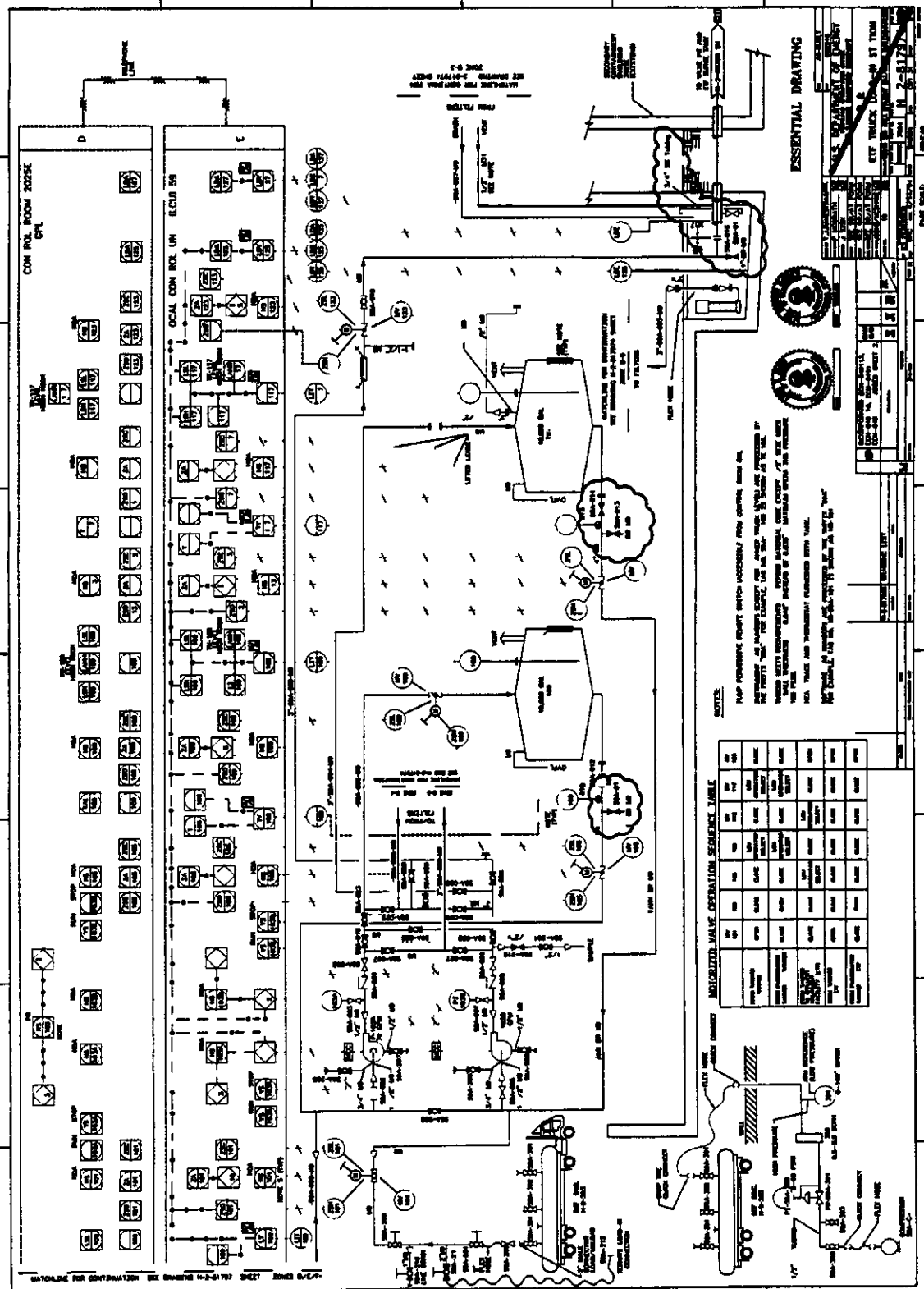
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ESSENTIAL DRAWING

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REVISED FOR BIC-COMPL	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE

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 ECU 65855 22 4 24 19
 112 81711 SHI



ESSENTIAL DRAWING

NOTES:

1. PUMP OPERATOR MUST BE ADVISED BY THE CONTROL ROOM OF ANY CHANGES IN THE SYSTEM.

2. THE SYSTEM IS DESIGNED TO OPERATE AT A FLOW RATE OF 100 GPM.

3. THE SYSTEM IS DESIGNED TO OPERATE AT A PRESSURE OF 100 PSI.

4. THE SYSTEM IS DESIGNED TO OPERATE AT A TEMPERATURE OF 70°F.

5. THE SYSTEM IS DESIGNED TO OPERATE AT A HUMIDITY OF 50%.

6. THE SYSTEM IS DESIGNED TO OPERATE AT A DENSITY OF 1.0 G/CM³.

7. THE SYSTEM IS DESIGNED TO OPERATE AT A VISCOSITY OF 1.0 CPO.

8. THE SYSTEM IS DESIGNED TO OPERATE AT A SURFACE TENSION OF 72 DYNES/CM.

9. THE SYSTEM IS DESIGNED TO OPERATE AT A CAPILLARY PRESSURE OF 1.0 CM/H₂O.

10. THE SYSTEM IS DESIGNED TO OPERATE AT A CONTACT ANGLE OF 90°.

11. THE SYSTEM IS DESIGNED TO OPERATE AT A WETTING SPREAD OF 1.0 CM.

12. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRESSURE OF 1.0 DYNES/CM.

13. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING COEFFICIENT OF 1.0.

14. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING INDEX OF 1.0.

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34. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

35. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

36. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

37. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

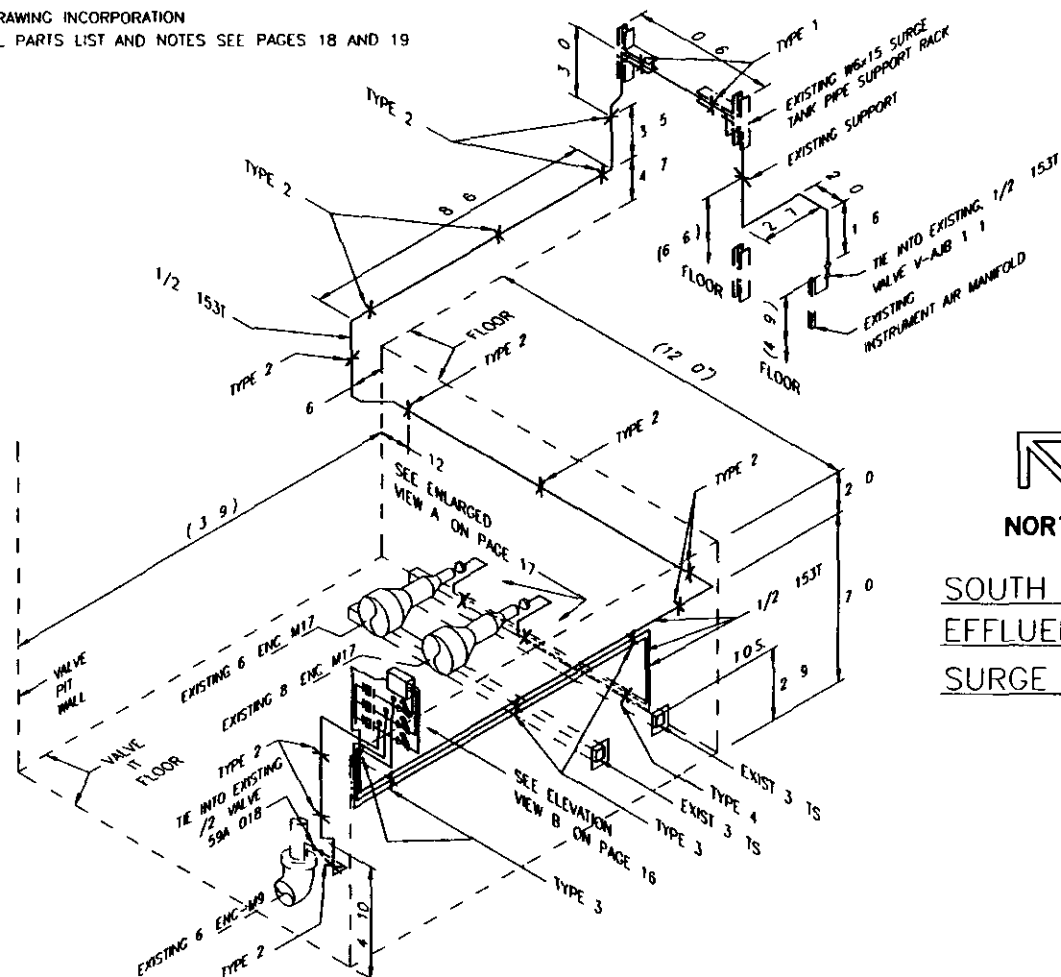
38. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

39. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

40. THE SYSTEM IS DESIGNED TO OPERATE AT A SPREADING PRAKATY FUGACITY COEFFICIENT OF 1.0.

CITY TRUCK 12
 H 2-81711
 H 2-81711
 H 2-81711

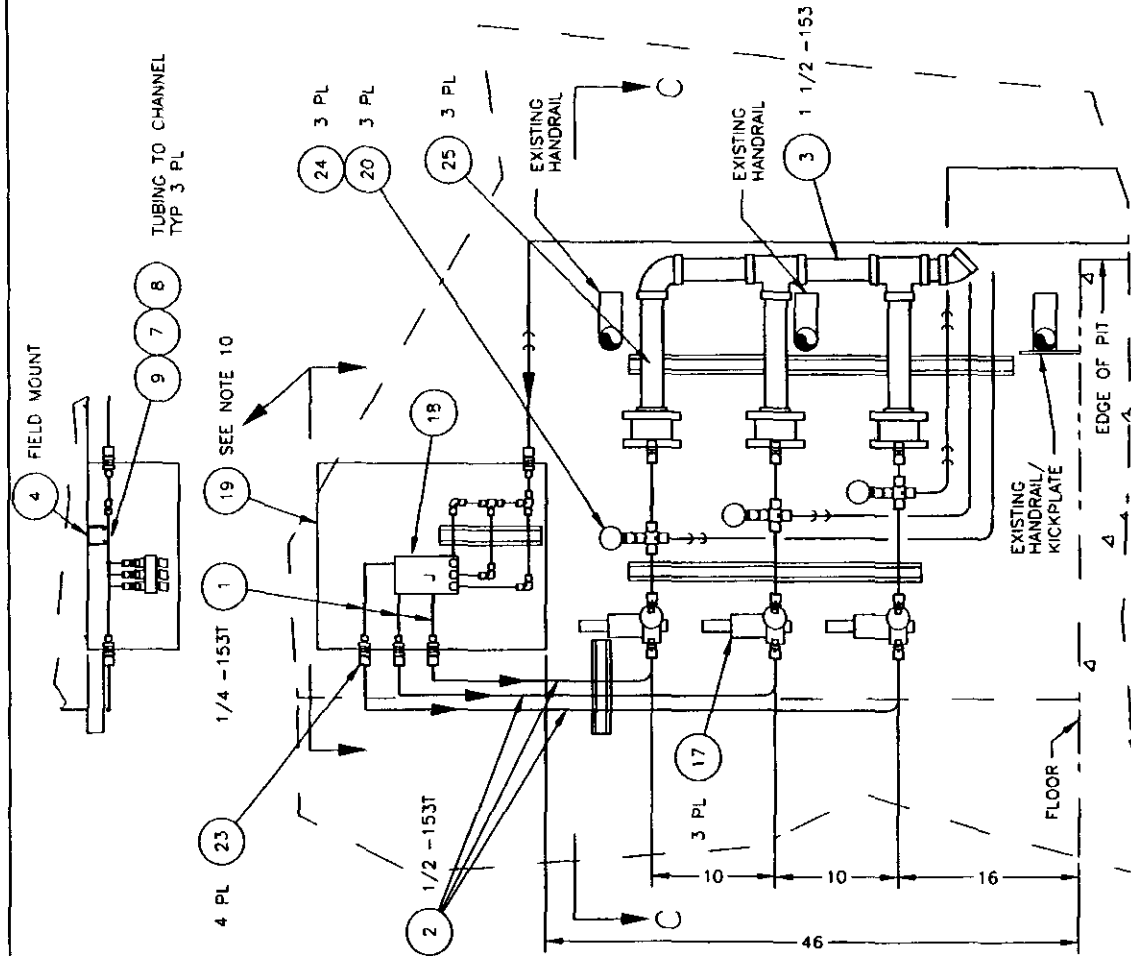
NOT FOR DRAWING INCORPORATION
FOR PARTIAL PARTS LIST AND NOTES SEE PAGES 18 AND 19



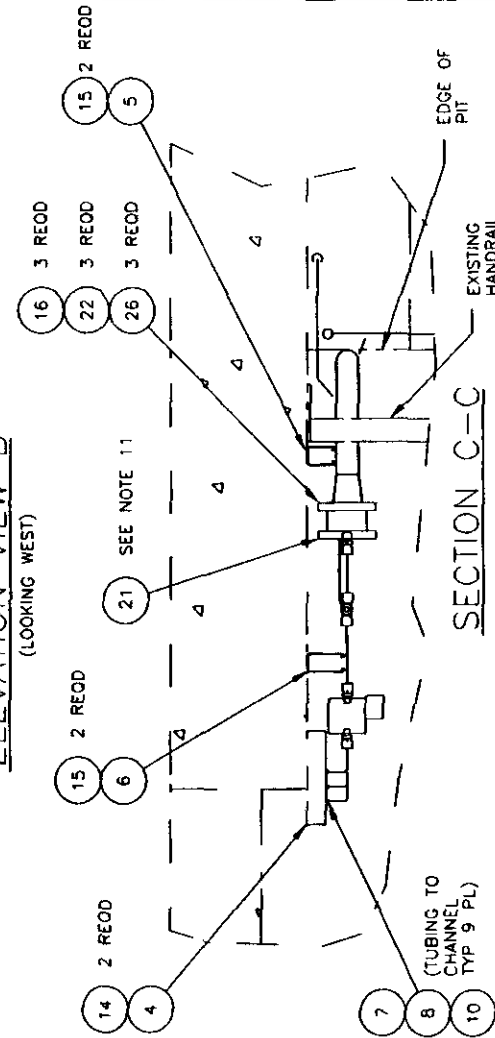
NORTH

SOUTH YARD
EFFLUENT TREATMENT FACILITY
SURGE TANK BERM AREA

NOT FOR DRAWING INCORPORATION
FOR PARTIAL PARTS LIST AND NOTES SEE PAGES 18 AND 19

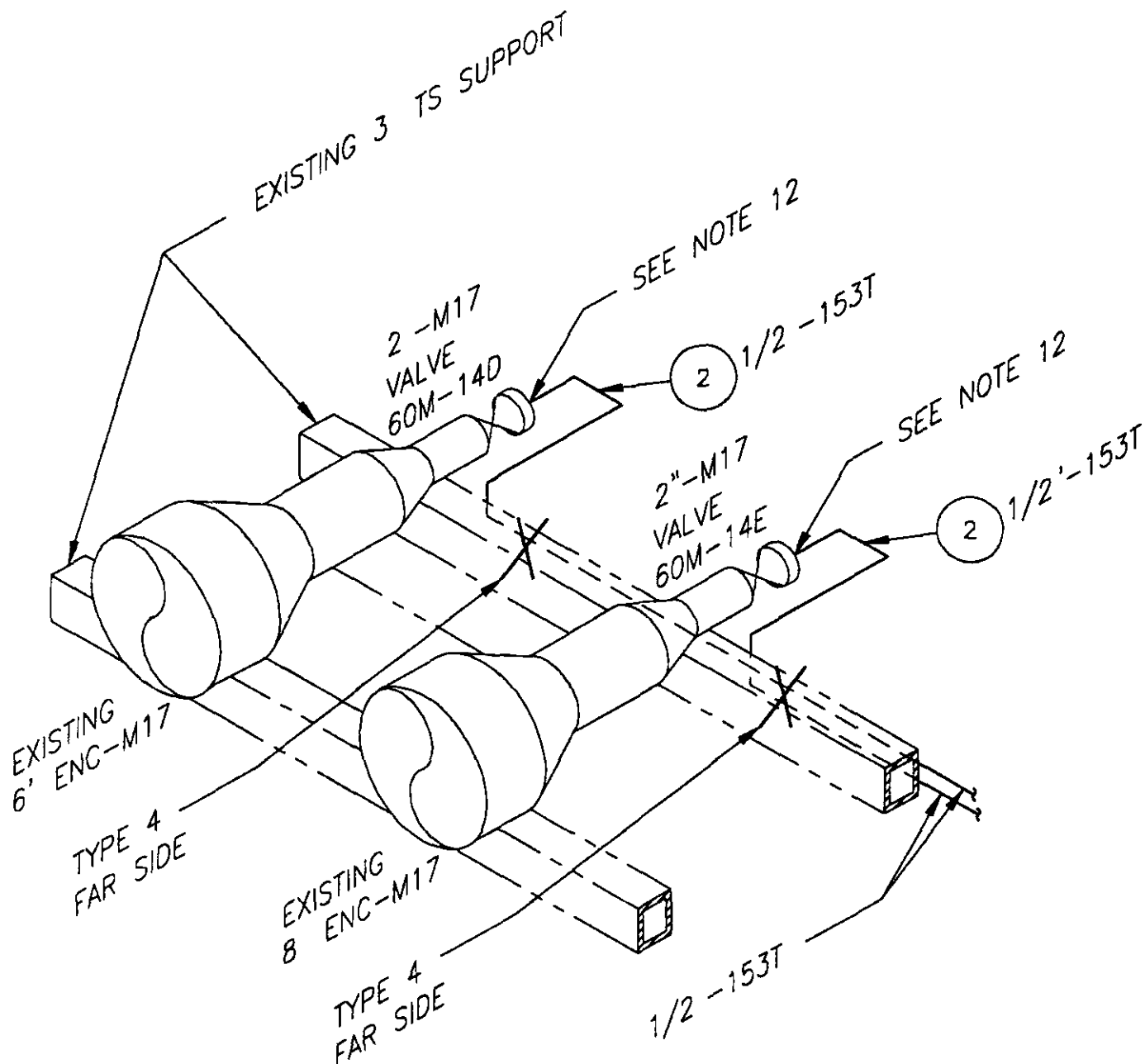


ELEVATION VIEW B
(LOOKING WEST)



SECTION C-C

NOT FOR DRAWING INCORPORATION
FOR PARTIAL PARTS LIST AND NOTES SEE PAGE 18 AND 19



ENLARGED VIEW A

PARTIAL PARTS LIST

NOT FOR DRAWING INCORPORATION

PN	QTY	DESCRIPTION	MATL/REF
1	AR	TUBING 1/4 " AND MISC FITTINGS	PIPE CODE 153T
2	AR	TUBING 1/2 " AND MISC FITTINGS	PIPE CODE 153T
3	AR	PIPE 1 1/2 SCHED 40S AND 3000# SWLDG FITTINGS	PIPE CODE 153
4	AR	CHANNEL 1 5/8 x 1 5/8 12 GA. GALV	B-LINE 822
5	AR	CHANNEL 2 7/16 x 1 5/8 12 GA GALV	B-LINE 812
6	AR	CHANNEL 3 1/4 x 1 5/8 12 GA. GALV	B-LINE 811
7	29	SPRING NUT 1/4-20 GALV	B-LINE, N224
8	32	SLOTTED HEX HEAD MACHINE SCREWS 1/4 x 3/4 LONG ZINC-PLATED	B-LINE 1/4 x 3/4 SHHMS
9	3	TUBING CLAMP ONE HOLE 1/4 "	B-LINE 82084
10	44	TUBING CLAMP ONE HOLE 1/2 "	B-LINE 82087
11	AR	ALL THREADED ROD 1/4 -UNC ZINC-PLATED	B-LINE ATR-1/4"
12	4	NUT HEX 1/4 -20UNC-28 ZINC-PLATED	COML
13	4	WASHERS, SPRING LOCK, ZINC-PLATED	COML
14	18	ANCHORS CONCRETE 1/4 (MIN EMB 1 1/8")	COML SST
15	14	ANCHORS CONCRETE 3/8 (MIN EMB 1 5/8")	COML SST
16	3	15 TYPE PLR NONFRAGMENTING NICKEL RUPTURE DISK BURST PRESSURE 7 PSIG @ 72 DEGREES F 0% MANUFACTURING RANGE IN 15 TYPE PROI RUPTURE DISK HOLDER 150 LB ANSI 316SS CONSTRUCTION	OSECO (800)395-3475 LARRY SCOTT
17	3	PRESSURE REDUCING VALVE W/PRESSURE INDICATING GAGE 100 PSIG - 5 PSIG AIR SERVICE 1/4 NPT SST BODY 5 SCFM REQD CAPACITY PART #FS67SS-1/C7	FISHER CONTROLS 67SS/C7 PCE PACIFIC INC CRAIG JEANE (425)487-9500
18	1	FLOWMETER MULTI-TUBE PURGE MANIFOLD DESIGN 1/4 COMPRESSION FITTINGS ON INLETS & OUTLETS WITH (3) INLET VALVES (HOFFMAN INSTRUMENTATION SUPPLY INC (503)466-2200 DENNIS)	BROOKS INSTRUMENT MODEL#1370CB3CJEL W/ (3) TUBES #S930BA8TV
19	1	ENCLOSURE WALL-MOUNT 16 x20 x8 SST	HOFFMAN C-SD1620BSS
20	3	PRESSURE GAUGE 1/4 MNPT 0-10psig PART #FS50-14	FISHER CONTROLS TYPE 50
21	3	1-1/2 304SS RAISED FACE BLIND FLANGE DRILLED & TAPPED FOR 1/2 SWAGELOK MALE NPT CONNECTOR	PIPE CODE 153
22	3	1-1/2 304SS RAISED FACE FLANGE 150# SWLDG	PIPE CODE 153
23	4	BULKHEAD REDUCING UNION 1/2 x1/4	SWAGELOK SS-810-61-4
24	3	FEMALE ADAPTER 1/2 TUBE x 1/4 FNPT	SWAGELOK SS-8-TA-7-4
25	3	PIPE CLAMP 1 1/2	B-LINE, B2012
26	AR	GASKET STUDS AND NUTS	PIPE CODE 153

NOT FOR DRAWING INCORPORATION

NOTES

- 1) FIELD RUN PIPE TUBING AND MISCELLANEOUS FITTINGS PER SPECIFICATION S-136H-001 PIPE CODE 153 AND 153T
- 2) ALL TUBE FITTINGS TO BE INSTALLED PER MANUFACTURER S SPECIFICATIONS
- 3) FABRICATION AND TESTING SHALL BE IN ACCORDANCE WITH ASME B31.1
- 4) DIMENSIONS SHOWN ARE APPROXIMATE FIELD ADJUST AS NECESSARY
- 5) FIELD ROUTE AND SUPPORT TUBING IN APPROXIMATE LOCATIONS SHOWN ADJUSTMENTS MAY BE MADE DUE TO FIELD CONDITIONS
- 6) MAXIMUM SPACING OF SUPPORTS 5'-0"
- 7) SUPPORT TUBING USING TYPICAL FIELD FABRICATED SUPPORTS OR WHERE CALLED OUT ON ECN AS FOLLOWS
 - TYPE 1 CHANNEL PN4 STRAPPED TO W6x15 WITH 1/4" Ø THREADED ROD PN11 NUTS PN12 AND WASHERS PN13
 - TYPE 2 CLAMP PN10 AND ANCHOR PN14
 - TYPE 3 CHANNEL PN4 ANCHORS PN15 MIN SPACING 5" CLAMP PN10 NUT PN7 AND SCREW PN8
 - TYPE 4 CLAMP PN10 AND SCREW PN8 DRILL AND TAP 3" TUBE STEEL
- 8) PCV-1D-001 PCV-1D-002 & PCV-1D-003 ARE TO BE SET TO MAINTAIN MAXIMUM DOWNSTREAM LINE PRESSURE AT LESS THAN OR EQUAL TO 5 PSIG
- 9) PCV-1D-004 PCV-1D-005 & PCV-1D-006 ARE TO BE SET TO RELIEVE AT 7 PSIG
- 10) FIELD LOCATE APPROX AS SHOWN MOUNT ENCLOSURE TO WALL WITH (4) 1/4" Ø CONCRETE ANCHORS PN14
- 11) DRILL AND TAP BLIND FLANGE ON CENTER TO ACCEPT 1/2" SWAGELOK MALE CONNECTOR
- 12) REPLACE EXISTING 2 FIBERGLASS FLANGE WITH 2 STAINLESS STEEL FLANGE PIPE CODE 153S USE FLAT FACE BLIND FLANGE DRILLED THROUGH AND TAPPED TO ACCEPT 1/2" SWAGELOK MALE CONNECTOR GASKET SHALL BE 3/16" THK EPDM FULL FACE 6" OD x 3 1/2" ID TORQUE FASTENERS TO 25 FT/LBS

cff 14
 cff 13A
 cff 13B

ENGINEERING CHANGE NOTICE **ESSENTIAL**
 Page 1 of 3

1 ECN **647209L**
 Proj. ECN

2 ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersede <input type="checkbox"/> Cancel/V d <input type="checkbox"/>	3 Originator's Name, Organization, MSIN and Telephone N LL Lin/32910/S6 72/372 2759	4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5 Dat December 1 1998
6 Project Title/No./Work Order N Install Hose Adaptors on Basin 42 Sample Ports/Charge # 101697 COA AJ60	7 Bldg./Sys./Fac No LERF/60M	8 Approval Designator NA	
9 Document Numbers Changed by this ECN (includes sheet no. and rev.) H 2 88766 Sh 2 Rev 4	10 Related ECN No() NA	11 Related PO No NA	

12 Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk. 12b) <input type="checkbox"/> No (NA Blks. 1 b 12 12d)	12b Work Package N EL 98 00840/L	12 Modification Work Complete Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) NA 12/1/98 Design Authority/Cog. Engineer Signature & Date
---	--	--	--

13a. Description of Change
13b. Design Baseline Document? ☒ Yes ☐ No

Install temporary adaptors per Detail I shown on page 3 of this ECN. The adaptors will be installed on Riser 3 and Riser 7 for LERF Basin 42. Install 2" line off the sample ports. Valves 60M TEMP 1 and 60M TEMP 2 shall be 2" gate valves or engineering approved equal. Install 1 1/2" pipe nipple down stream of the 2" x 1 1/2" reducer.

Material of construction shall be compatible with rain water at a maximum pressure of 100 psig. Use EPDM gasket or engineering approved equal. Perform in service leak test on the new installation.

14a. Justification (mark one)			
Criteria Change <input type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input checked="" type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-found <input type="checkbox"/>	Facilitate Const. <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

14b. Justification Detail

Temporary adaptors are needed to expedite the pumping of the standing water on LERF Basin 42 cover. This water contains radioactivity which is above the limits for discharging to the ground. The adaptors will allow the transfer of the water using the basin float pump back to the basin.

15. Distribution (include name, MSIN and no. of copies)			
N J S. Ilvan S6 72 1	J M. Petty S6-74 1	A K. Yoakum S6-72 1	M W. Bowman S6 72 1
I L. Lin S6 72 1	B S. Darling T4-05 1	A F. Crane S6 72 1	
WCC Planning S6 71 1			
C D. Skelley T4-05 1			
D L. Flykt S6 71 1			
(1 Advance Copy)			

RELEASE STAMP

DEC 02 1998

16

18

1 ECN 647209L

Page 2 of 3

1 ECN 647209L

16 Design Verification Required	17 Cost Impact	NA	18 Schedule Impact (days)		
	ENGINEERING		CONSTRUCTION		
[X] Yes	Additional	[] \$	Additional	[] \$	
[] No	Savings	[] \$	Savings	[] \$	
19 Change Impact Review that will be affected by the change described in Block 13	Indicate the related documents (other than the engineering documents identified on Side 1) Enter the affected document number in Block 20				
SD/DD	[NA]	Stress/Stress Analysis	[NA]	Tank Calibration Manual	[NA]
Functional Design Criteria	[NA]	Stress/Design Report	[NA]	Health Physics Procedure	[NA]
Operating Specifications	[NA]	Interface Control Drawing	[NA]	Spares Multiple Unit Listing	[NA]
Capacity Specification	[NA]	Calibration Procedure	[NA]	Test Procedures/Specification	[NA]
Conceptual Design Report	[NA]	Installation Procedure	[NA]	Component Index	[NA]
Equipment Spec	[NA]	Maintenance Procedure	[NA]	ASME Coded Item	[NA]
Control Spec	[NA]	Engineering Procedure	[NA]	Human Factor Consideration	[NA]
Procurement Spec	[NA]	Operating Instruction	[NA]	Computer Software	[NA]
Vendor Information	[NA]	Operating Procedure	[NA]	Electric Layout Schedule	[NA]
OM Manual	[NA]	Operational Safety Requirement	[NA]	ICRS Proceed	[NA]
FSAR/SAR	[NA]	IEFD Drawing	[X]	Process Control Manual/Plan	[NA]
Safety Equipment List	[NA]	Cell Arrangement Drawing	[NA]	Process Flow Chart	[NA]
Radiation Work Permit	[NA]	Essential Material Specification	[NA]	Purchase Requisition	[NA]
Environmental Impact Statement	[NA]	Fac Proc Samp Sol dnt	[NA]	Ticker File	[NA]
Environmental Report	[NA]	Inspection Plan	[NA]		[]
Environmental Permit	[NA]	Inventory Adjustment Request	[NA]		[]

Document Number Revision

No other documents affected by this ECN

2) Approvals	Signature _____ Date _____	S gnature _____ Date _____
Des gn Authority L L Lin _____	12/2/98	Design Agent - L L Lin _____
C g F b - I L Lin _____	12/2/98	PE _____
C s Mgr N J Sull van _____	12-2-98	QA _____
QA _____	_____	S fety _____
Safety _____	_____	Des gn _____
Environ _____	_____	Environ. _____
Other R J Huth (Informal Design Review)	12-2-98	Other _____
Operations _____	_____	_____
_____	_____	_____
_____	_____	DEPARTMENT OF ENERGY
_____	_____	S gature or Control Number that tracks the Approval Signature
_____	_____	_____
_____	_____	ADDITIONAL
_____	_____	_____
_____	_____	_____
_____	_____	_____

8

DON'T SAY IT — Write It!

Date 11/8/00

TO J L Cushman

From L L Lin 

CC N J Sullivan

Subject Temporary ECN 647209L Extension

Please extend temporary ECN 647209L Install Hose Adaptor On Basin 42 Sample Ports for 180 days from the date of this DSI This is due to the continued need for pumping standing water from the basin cover The permanent ECN which will close out this temporary ECN will be pursued once the priority is assigned

NOV 08 2000

(25)
11-6-00

F04 11/10/00

CFF 18
 CFF 13A
 CFF 13B

ENGINEERING CHANGE NOTICE	ESSENTIAL	1 ECN 6472094 Proj. ECN
Page 1 of <u>3</u>		

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary Standby <input checked="" type="checkbox"/> Supersede <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MERN, and Telephone No. LL Lia/32910/86-72/372-2759	4. URG Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Date December 1 1998
6. Project Title/No./Work Order No. Install Hose Adaptors on Basin 42 Sample Ports/Charge # 101697, COA AJ60	7. Bldg./Bys./Fac. No. LERF/60M	8. Approval Designator NA	
9. Document Number Changed by this ECN (includes sheet no. and rev.) H-2-88766 Sh.2 Rev 4	10. Related ECN No(s). NA	11. Related PO No. NA	

12a. Modification Work <input checked="" type="checkbox"/> Yes (fill out Bk. 12b) <input type="checkbox"/> No (NA Bkts. 1-b, 12c, 12d)	12b. Work Package No. EL-98-00840/L	12c. Modification Work Complete <div style="text-align: center;"> JAN 13 1999 <i>[Signature]</i> Design Authority/Cog. Engineer Signature & Date </div>	12d. Reverted to Original Condition (Temp. or Standby ECN only) NA Design Authority/Cog. Engineer Signature & Date
--	---	--	--

13a. Description of Change

Install temporary adaptors per Detail I shown on page 3 of this ECN. The adaptors will be installed on Riser 3 and Riser 7 for LERF Basin 42. Install 2" line off the sample ports. Valves 60M-TEMP 1 and 60M-TEMP 2 shall be 2" gate valves or engineering approved equal. Install 1 1/2" pipe nipple down stream of the 2"x 1 1/2" reducer.

Material of construction shall be compatible with rain water at a maximum pressure of 100 psig. Use EPDM gasket or engineering approved equal. Perform in-service leak test on the new installation.

13b. Design Baseline Document? ☒ Yes ☐ No

14a. Justification (mark one)			
Criteria Change <input type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input checked="" type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilities Const. <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

14b. Justification Details

Temporary adaptors are needed to expedite the pumping of the standing water on LERF Basin 42 cover. This water contains radioactivity which is above the limits for discharging to the ground. The adaptors will allow the transfer of the water using the basin float pump, back to the basin.

15. Distribution (include name, MERN, and no. of copies)			
N. J. Sullivan 86-72 1	J. M. Petty 86-74 1		
J. M. Inell 03-17 1	A. K. Yonson 86-72 1		
L. L. Lee 86-72 1	M. W. Bowman 86-72 1		
WCC Planning 86-71 1	B. S. Darling 74-05 1		
C. D. Stogley 74-05 1	A. F. Crane 86-72 1		
D. L. Flyckt 86-71 1			
(* = 1 Advance Copy)			

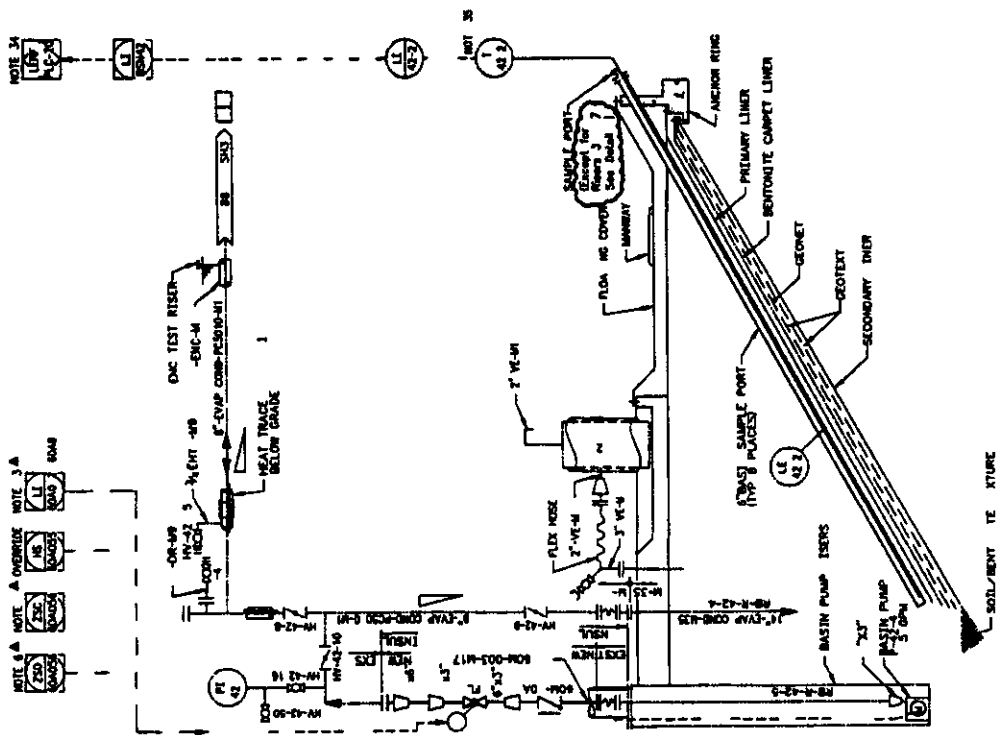
RELEASE STAMP
DEC 02 1998
 DATE: **12/16**
 BY: **[Signature]**
 ID: **18**

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

Page 3 of 3

1 ECN (use no from pg 1)
647209L

ECN N	647209L	SH	2	Rev	4
Ref Desig	H-2-88766				
Zone	B-3 TO F-3				



NOTE:
FOR NOTES SEE SHEET

ECN Changes Shown in

242 EVAP COND
242 L 42
ILLION GA
CAPACITY

8

DON'T SAY IT — Write It!

Date 11/8/00

TO J L Cushman

From L L Lin 

CC N J Sullivan

Subject Temporary ECN 647209L Extension

Please extend temporary ECN 647209L Install Hose Adaptor On Basin 42 Sample Ports for 180 days from the date of this DSI This is due to the continued need for pumping standing water from the basin cover The permanent ECN which will close out this temporary ECN will be pursued once the priority is assigned

NOV 08 2000

25
11/8/00

S

ESSENTIAL

ENGINEERING CHANGE NOTICE

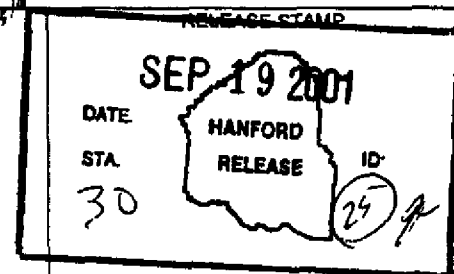
1 ECN 664355

CPF 18, 13A, + 13B

Page 1 of 4

Proj
ECN

2 ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersature <input checked="" type="checkbox"/> Cancel/Void <input type="checkbox"/>		3 Originator's Name Organization MSIN and Telephone No KD JUNT/3M500/S6-72/372-2771		4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5 Date 9-12-01																								
		6 Project Title/No /Work Order No INSTALL HOSE CONNECTOR AT LERF BASIN 42 /101697 COA/AJ60		7 Bldg /Sys /Fac. No 242AL42	8 Approval Designator T																								
		9 Document Numbers Changed by this ECN (includes sheet no and rev) SEE BLOCK 13a		10 Related ECN No(s) ECN662042	11 Related PO No N/A																								
12a Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> No (NA Blks 12b 12c, 12d)		12b Work Package No EL-98-00840	12c Modification Work Completed Design Authority/Cog Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECNs only) N/A Design Authority/Cog Engineer Signature & Date																								
13a Description of Change THIS ECN SUPERSEDES ECN662042 DATED 8/21/01 IN FULL H-2-79592 SH 2 REV 1 H-2-79592 SH 3 REV 0 H-2-88766 SH 2 REV 5 DESCRIPTION/LOCATION OF CHANGES A) P&ID CHANGES ARE SHOWN ON PAGE 3 B) PIPING DRAWING ADDITIONS ARE SHOWN ON PAGES 3 AND 4 C) FABRICATION DETAILS ARE SHOWN ON PAGE 4 FABRICATION NOTES 1) INSTALL INSPECT AND TEST NEW PIPING IN ACCORDANCE WITH ASME B31 3-1993 EDITION AND ADDENDA FOR CATEGORY D FLUID SERVICE 2) FIELD VERIFY DIMENSIONS BEFORE FABRICATION 3) REUSE EXISTING BOLTING MATERIALS TORQUE TO 18-37 FT-LBS LUBRICATE ALL THREADS AND WASHERS																													
14a Justification (mark one) Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As-Found <input type="checkbox"/> Facilitate Const <input type="checkbox"/> Const Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>		14b Justification Details ADAPTORS ARE NEEDED TO EXPEDITE THE PUMPING OF THE STANDING WATER ON LERF BASIN COVER OCCASIONALLY THIS WATER CONTAINS RADIOACTIVITY WHICH IS ABOVE THE LIMITS FOR DISCHARGING TO THE GROUND THE ADAPTORS WILL ALLOW THE TRANSFER OF THE WATER USING THE BASIN FLOAT PUMP BACK TO THE BASIN																											
15 Distribution (include name MSIN and no of copies) <table border="0"> <tr> <td>KD JUNT</td> <td>S6-72 1</td> <td>BA MESSINGER</td> <td>B4-39 1</td> </tr> <tr> <td>JM ISDELL</td> <td>B4-39 1</td> <td>MJ BROWN</td> <td>S6-72 1*</td> </tr> <tr> <td>CD SKOGLEY</td> <td>S6-71 1</td> <td>WCC PLANNING</td> <td>S6-71 1</td> </tr> <tr> <td>NJ SULLIVAN</td> <td>S6-72 1</td> <td>MW BOWMAN</td> <td>S6-72 1</td> </tr> <tr> <td>LL HUTH</td> <td>S6-72 1*</td> <td>HL ROACH</td> <td>S6-72 1</td> </tr> <tr> <td>DL FLYCKT</td> <td>S6-71 1</td> <td>KJ LUECK</td> <td>S6-72 1</td> </tr> </table> advanced copy						KD JUNT	S6-72 1	BA MESSINGER	B4-39 1	JM ISDELL	B4-39 1	MJ BROWN	S6-72 1*	CD SKOGLEY	S6-71 1	WCC PLANNING	S6-71 1	NJ SULLIVAN	S6-72 1	MW BOWMAN	S6-72 1	LL HUTH	S6-72 1*	HL ROACH	S6-72 1	DL FLYCKT	S6-71 1	KJ LUECK	S6-72 1
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DL FLYCKT	S6-71 1	KJ LUECK	S6-72 1																										



Page 2 of 4

ECN 664355

21 Approvals			
Signature	Date	Signature	Date
Design Authority MJ BROWN <i>MJ Brown</i>	<i>11/11</i>	Design Agent KD JUNT <i>KD Junt</i>	<i>7/13/01</i>
Cog Eng MJ BROWN <i>MJ Brown</i>	<i>11/11</i>	PE _____	_____
Cog Mgr KJ LUECK <i>KJ Lueck</i>	<i>11/11</i>	QA _____	_____
QA _____	_____	Safety _____	_____
Safety _____	_____	Design _____	_____
Environ _____	_____	Environ _____	_____
Other HL ROACH <i>HL Roach</i>	<i>9/13/01</i>	Other _____	_____
(PEER REVIEW)	_____	_____	_____
_____	_____	_____	_____
_____	_____	DEPARTMENT OF ENERGY	
_____	_____	Signature or a Control Number that tracks the	
_____	_____	Approval Signature	
_____	_____	_____	_____
_____	_____	ADDITIONAL	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

H-2-79592 SH 2 ADD FIELD NOTES AS SHOWN IN CLOUDED AREAS

SAMPLE PORT RISER #3 CENTER EAST SIDE
SEE DETAIL 30 H-2-79592 SH 3

OMIT FOR NORTH
SAMPLE PORT RISER
(EACH BASIN)

GASKET
RAISED FACE

Ø 6 SCH 80
6" T PIPE

4"

3"

6"

4 1/2"

CLR

2"

1' 0"

6"

1' 0"

6"

1' 0"

6"

1' 0"

6"

1' 0"

6"

1' 0"

6"

1' 0"

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1' 0"

6"

1' 0"

6"

1' 0"

6"

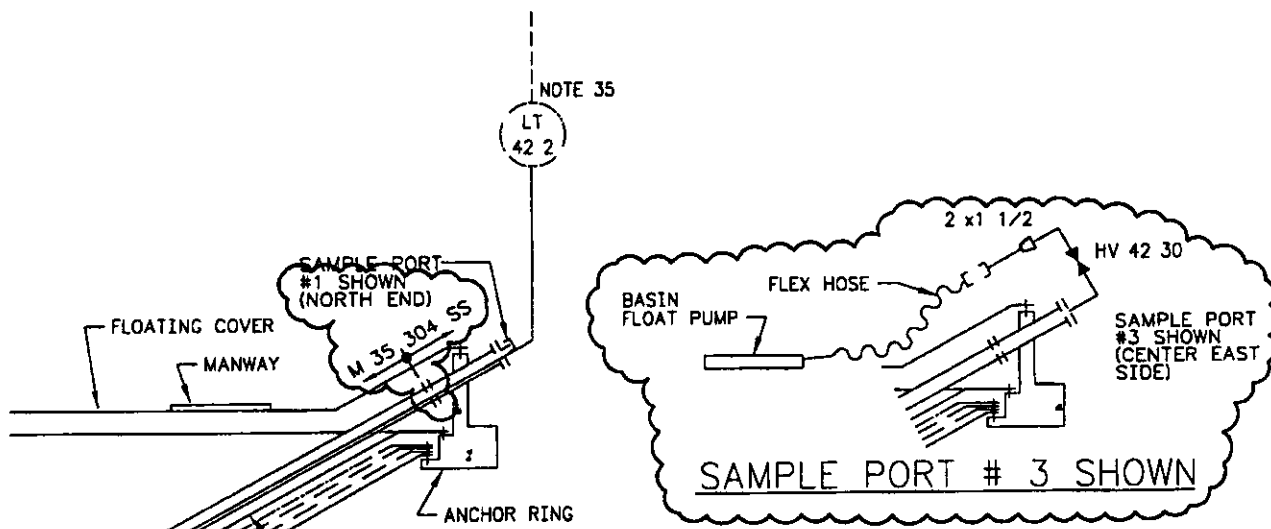
1' 0"

NOTE FIELD ADJUST ELEVATION SUCH
THAT OUTSIDE BOTTOM OF 6
INCH PIPE ALIGNS 1 INCH
ABOVE AND PARALLEL WITH
THE SIDE SLOPE OF THE
BASIN SOIL BENTONITE
SURFACE

NOTE SAMPLE PORT RISERS
ARE NUMBERED 1 THRU 8
STARTING AT THE NORTH
PORT AND CONTINUING
CLOCKWISE

SCALE 1 1/2" = 1' 0"

H-2-88766 SH 2 ZONE C2 ADDITIONS ARE SHOWN IN CLOUDED AREAS

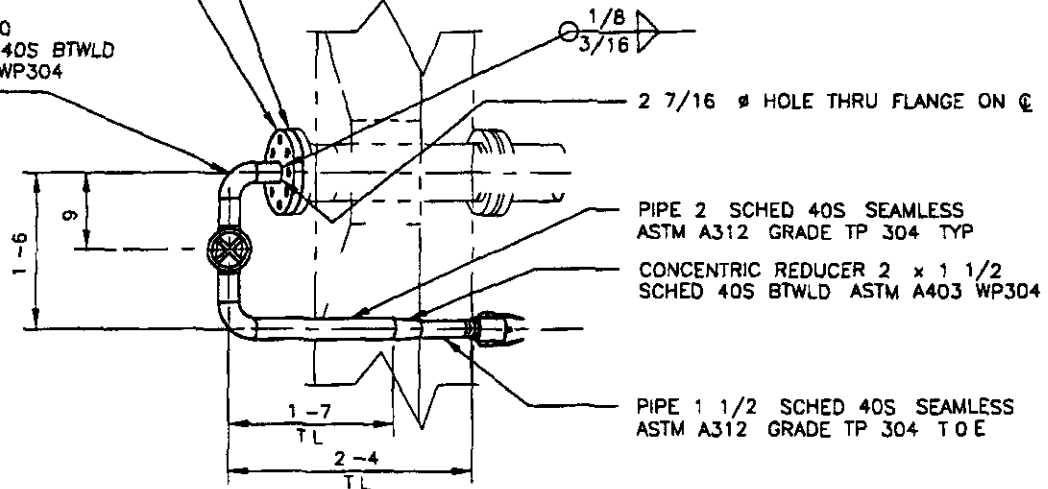


H-2-79592 SH 3 ADD DETAIL 30 AS SHOWN

FLANGE 6 BLIND
RAISED FACE CLASS 150
ASTM A182 GRADE F304

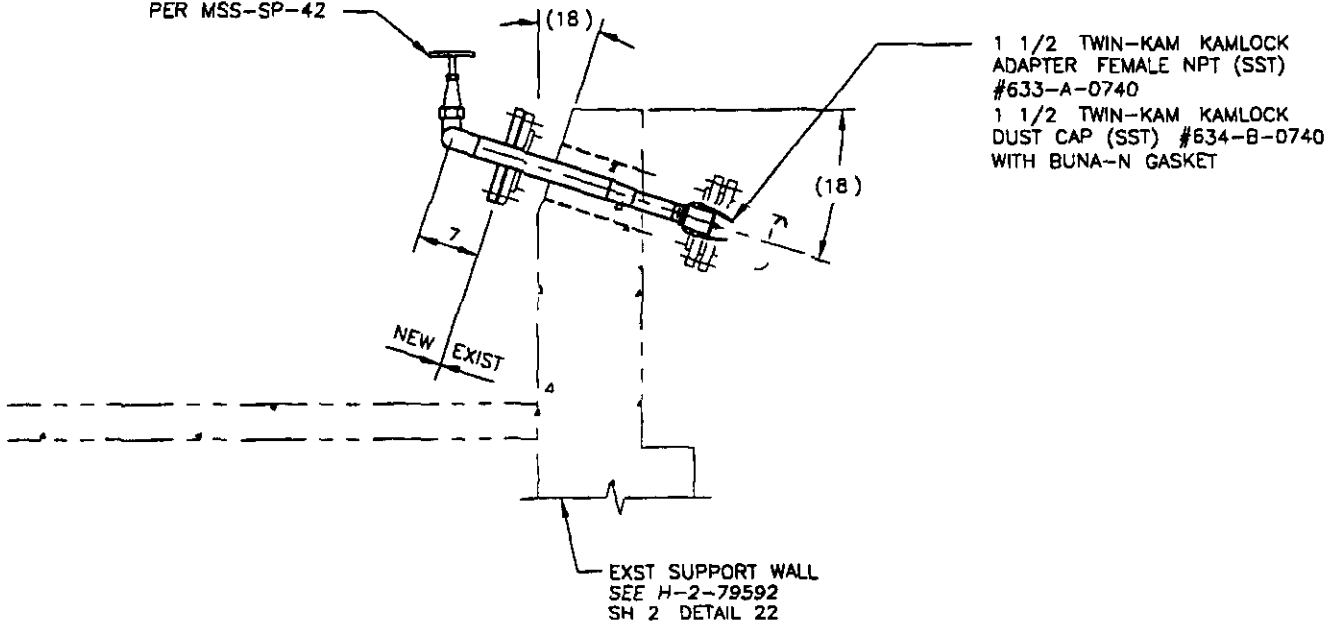
ELBOW 2 90
L.R. SCHED 40S BTWLD
ASTM A403 WP304
2 PLACES

GASKET FULL FACE GARLOCK BLUE-GARD STYLE 3000 1/8 THICK

PLAN

SAMPLE PORT RISER #3 CENTER EAST SIDE OF BASIN 42
(PORT CAN BE USED TO CONNECT TO EXISTING BASIN FLOAT PUMP
AT FLEX HOSE USING A 1 1/2 TWIN-KAM KAMLOCK COUPLER
FEMALE NPT (SST) #633-D-0740 WITH BUNA-N GASKET)

VALVE 2 GATE CLASS 150
BUTT WELD ENDS SST
PER MSS-SP-42

ELEVATIONDETAIL

30

SCALE 1" = 1'-0" H-2-79592 SH 2

S

ESSENTIAL

ENGINEERING CHANGE NOTICE

1 ECN 664319

CPF 18, 134, 13B

Page 1 of 3

Proj
ECN

2 ECN Category (mark one) Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>		3 Originator's Name Organization MSIN and Telephone No KD JUNT/3M500/S6-72/372-2771		4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5 Date 7-23-01
		6 Project Title/No /Work Order No INSTALL HOSE CONNECTOR AT LERF BASIN 43 /101697 COA/AJ60	7 Bldg /Sys /Fac. No 242AL43	8 Approval Designator T	
		9 Document Numbers Changed by this ECN (includes sheet no and rev) SEE BLOCK 13a	10 Related ECN No(s) N/A	11 Related PO No N/A	
12a Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> No (NA Blks 12b 12c 12d)		12b Work Package No EL-98-00840	12c Modification Work Completed Design Authority/Cog Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECNs only) N/A Design Authority/Cog Engineer Signature & Date
13a Description of Change H-2-79592 SH 3 REV 0 H-2-88766 SH 3 REV 6 DESCRIPTION/LOCATION OF CHANGES A) P&ID CHANGES ARE SHOWN ON PAGE 3 B) PIPING DRAWING ADDITIONS ARE SHOWN ON PAGES 3 C) FABRICATION DETAILS ARE SHOWN ON DETAIL 30 SHEET 3 OF H-2-79592 REF ECN-662042 FABRICATION NOTES 1) INSTALL INSPECT AND TEST NEW PIPING IN ACCORDANCE WITH ASME B31 3-1993 EDITION AND ADDENDA FOR CATEGORY D FLUID SERVICE 2) FIELD VERIFY DIMENSIONS BEFORE FABRICATION 3) REUSE EXISTING BOLTING MATERIALS TORQUE TO 148 FT-LBS LUBRICATE ALL THREADS AND WASH					
13b Design Baseline Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
14a Justification (mark one) Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As Found <input type="checkbox"/> Facilitate Const <input type="checkbox"/> Const Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>		14b Justification Details ADAPTORS ARE NEEDED TO EXPEDITE THE PUMPING OF THE STANDING WATER ON LERF BASIN COVER OCCASIONALLY THIS WATER MAY CONTAIN RADIOACTIVITY WHICH IS ABOVE THE LIMITS FOR DISCHARGING TO THE GROUND THE ADAPTORS WILL ALLOW THE TRANSFER OF THE WATER USING THE BASIN FLOAT PUMP BACK TO THE BASIN			
15 Distribution (include name MSIN and no of copies) KD JUNT S6-72 1 BA MESSINGER B4-39 1 JM ISDELL B4-39 1 MJ BROWN S6-72 1 CD SKOGLEY S6-71 1 WCC PLANNING S6-71 1 NJ SULLIVAN S6-72 1 MW BOWMAN S6-72 1 LL HUTH S6-72 1 HL ROACH S6-72 1 DL FLYCKT S6-71 1 KJ LUECK S6-72 1 advanced copy					

RELEASE STAMP	
AUG 27 2001	
DATE	STA
30	25
HANFORD RELEASE	

ENGINEERING CHANGE NOTICE

Page 2 of 3

1 ECN (use no from pg 1)

ECN 664319

16 Design Verification Required

☒ Yes

☐ No

17 Cost Impact

ENGINEERING

Additional ☐ \$ NA

Savings ☐ \$ NA

CONSTRUCTION

Additional ☐ \$ NA

Savings ☐ \$ NA

18 Schedule Impact (days)

Improvement ☐ NA

Delay ☐ NA

19 Change Impact Review Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13 Enter the affected document number in Block 20

SDD/DD	<input type="checkbox"/>	Seismic/Stress Analysis	<input type="checkbox"/>	Tank Calibration Manual	<input type="checkbox"/>
Functional Design Criteria	<input type="checkbox"/>	Stress/Design Report	<input type="checkbox"/>	Health Physics Procedure	<input type="checkbox"/>
Operating Specification	<input type="checkbox"/>	Interface Control Drawing	<input type="checkbox"/>	Spares Multiple Unit Listing	<input type="checkbox"/>
Criticality Specification	<input type="checkbox"/>	Calibration Procedure	<input type="checkbox"/>	Test Procedures/Specification	<input type="checkbox"/>
Conceptual Design Report	<input type="checkbox"/>	Installation Procedure	<input type="checkbox"/>	Component Index	<input checked="" type="checkbox"/>
Equipment Spec.	<input type="checkbox"/>	Maintenance Procedure	<input type="checkbox"/>	ASME Coded Item	<input type="checkbox"/>
Const Spec.	<input type="checkbox"/>	Engineering Procedure	<input type="checkbox"/>	Human Factor Consideration	<input type="checkbox"/>
Procurement Spec.	<input type="checkbox"/>	Operating Instruction	<input type="checkbox"/>	Computer Software	<input type="checkbox"/>
Vendor Information	<input type="checkbox"/>	Operating Procedure	<input checked="" type="checkbox"/>	Electric Circuit Schedule	<input type="checkbox"/>
OM Manual	<input type="checkbox"/>	Operational Safety Requirement	<input type="checkbox"/>	ICRS Procedure	<input type="checkbox"/>
FSAR/SAR	<input type="checkbox"/>	IEFD Drawing	<input checked="" type="checkbox"/>	Process Control Manual/Plan	<input type="checkbox"/>
Safety Equipment List	<input type="checkbox"/>	Cell Arrangement Drawing	<input type="checkbox"/>	Process Flow Chart	<input type="checkbox"/>
Radiation Work Permit	<input type="checkbox"/>	Essential Material Specification	<input type="checkbox"/>	Purchase Requisition	<input type="checkbox"/>
Environmental Impact Statement	<input type="checkbox"/>	Fac Proc Samp Schedule	<input type="checkbox"/>	Tickler File	<input type="checkbox"/>
Environmental Report	<input type="checkbox"/>	Inspection Plan	<input type="checkbox"/>		<input type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input type="checkbox"/>		<input type="checkbox"/>

20 Other Affected Documents (NOTE Documents listed below will not be revised by this ECN) Signatures below indicate that the signing organization has been notified of other affected documents listed below

Document Number/Revision

POP-60M-002

Document Number/Revision

NA

Document Number/Revision

NA

21 Approvals

Signature	Date	Signature	Date
Design Authority <u>LILLY L HUTH</u>	<u>8-1-01</u>	Design Agent <u>KD JUNT</u>	<u>8-15-01</u>
Cog Eng <u>LILLY L HUTH</u>	<u>8-15-01</u>	PE	
Cog Mgr <u>KJ LUECK</u>	<u>8/21/01</u>	QA	
QA		Safety	
Safety		Design	
Environ		Environ	
Other <u>HL ROACH</u>	<u>8-20-01</u>	Other	

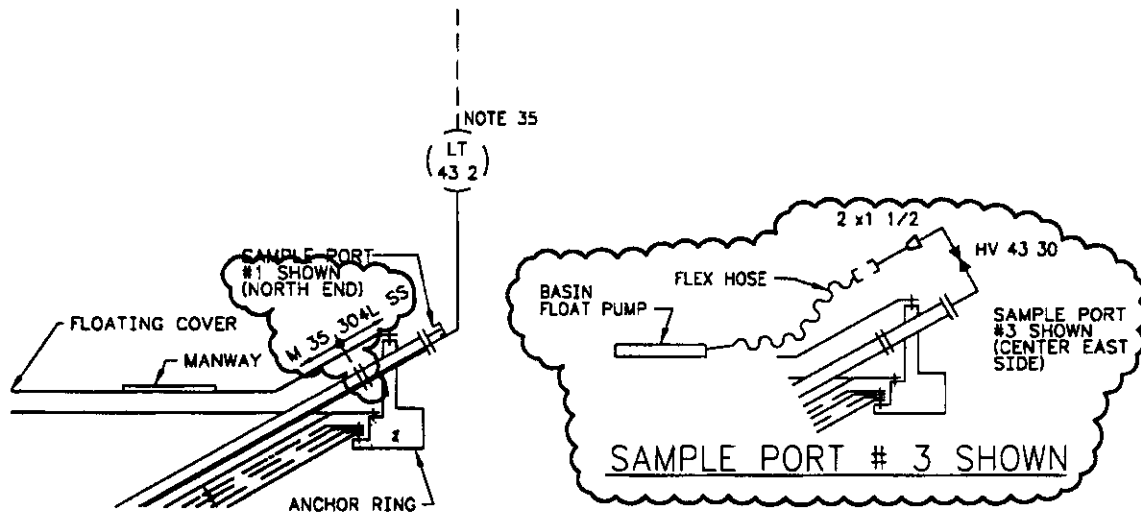
(INDEPENDENT DESIGN REVIEW)

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

H-2-88766 SH 3 ZONE C2 ADDITIONS ARE SHOWN IN CLOUDED AREAS



H-2-79592 SH 3 REVISE DETAIL 30 PLAN NOTE BY ADDING BASIN 43 TO BASIN 42

DETAIL 30 PLAN NOTE SHOWN. (REF ECN662042)

PLAN SAMPLE PORT RISER #3 CENTER EAST SIDE OF BASIN 42
(PORT CAN BE USED TO CONNECT TO EXISTING BASIN FLOAT PUMP
AT FLEX HOSE USING A 1 1/2 TWIN KAM KAMLOCK COUPLER
FEMALE NPT #633 D 0740)

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ENGINEERING CHANGE NOTICE CPF 18, 13A, 13B	ESSENTIAL Page 1 of <u>3</u>	1 ECN 664320 Proj ECN
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2 ECN Category (mark one) Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3 Originator's Name Organization MSIN and Telephone No KD JUNT/3M500/S6-72/372-2771 6 Project Title/No /Work Order No INSTALL HOSE CONNECTOR AT LERF BASIN 44 /101697 COA/AJ60 9 Document Numbers Changed by this ECN (includes sheet no and rev) SEE BLOCK 13a	4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 7 Bldg /Sys /Fac No 242AL44	5 Date 7-23-01 8 Approval Designator T 11 Related PO No N/A
12a Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> No (NA Blks 12b, 12c, 12d)	12b Work Package No EL-98-00840	12c Modification Work Completed Design Authority/Cog Engineer Signature & Date	12d Restored to Original Condition (Temp or Standby ECNs only) N/A Design Authority/Cog Engineer Signature & Date

13a Description of Change H-2-79592 SH 3 REV 0 H-2-88766 SH 4 REV 6 DESCRIPTION/LOCATION OF CHANGES A) P&ID CHANGES ARE SHOWN ON PAGE 3 B) PIPING DRAWING ADDITIONS ARE SHOWN ON PAGES 3 C) FABRICATION DETAILS ARE SHOWN ON DETAIL 30 SHEET 3 OF H-2-79592 REF ECN-662042 FABRICATION NOTES 1) INSTALL INSPECT AND TEST NEW PIPING IN ACCORDANCE WITH ASME B31 3-1993 EDITION AND ADDENDA FOR CATEGORY D FLUID SERVICE 2) FIELD VERIFY DIMENSIONS BEFORE FABRICATION 3) REUSE EXISTING BOLTING MATERIALS TORQUE TO 148 FT-LBS LUBRICATE ALL THREADS AND WASHERS	13b Design Baseline Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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14a Justification (mark one) Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As-Found <input type="checkbox"/> Facilitate Const <input type="checkbox"/> Const Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>	14b Justification Details ADAPTORS ARE NEEDED TO EXPEDITE THE PUMPING OF THE STANDING WATER ON LERF BASIN COVER OCCASIONALLY THIS WATER MAY CONTAIN RADIOACTIVITY WHICH IS ABOVE THE LIMITS FOR DISCHARGING TO THE GROUND THE ADAPTORS WILL ALLOW THE TRANSFER OF THE WATER USING THE BASIN FLOAT PUMP BACK TO THE BASIN
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15 Distribution (include name MSIN and no of copies) KD JUNT S6-72 1 BA MESSINGER B4-39 1 JM ISDELL B4-39 1 MJ BROWN S6-72 1 CD SKOGLEY S6-71 1 WCC PLANNING S6-71 1 NJ SULLIVAN S6-72 1 MW BOWMAN S6-72 1 LL HUTH S6-72 1 HL ROACH S6-72 1 DL FLYCKT S6-71 1 KJ LUECK S6-72 1 advanced copy	RELEASE STAMP <div style="border: 2px solid black; padding: 10px; display: inline-block;"> AUG 21 2001 DATE STA. 30 HANFORD RELEASEC ID 25 </div>
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ENGINEERING CHANGE NOTICE

Page 2 of 3

1 ECN (use no. from pg 1)

ECN 664320

16 Design Verification Required

☒ Yes

☐ No

17 Cost Impact

ENGINEERING

Additional ☐ \$ NA

Savings ☐ \$ NA

CONSTRUCTION

Additional ☐ \$ NA

Savings ☐ \$ NA

18 Schedule Impact (days)

Improvement ☐ NA

Delay ☐ NA

19 Change Impact Review

Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	<input type="checkbox"/>	Seismic/Stress Analysis	<input type="checkbox"/>	Tank Calibration Manual	<input type="checkbox"/>
Functional Design Criteria	<input type="checkbox"/>	Stress/Design Report	<input type="checkbox"/>	Health Physics Procedure	<input type="checkbox"/>
Operating Specification	<input type="checkbox"/>	Interface Control Drawing	<input type="checkbox"/>	Spares Multiple Unit Listing	<input type="checkbox"/>
Criticality Specification	<input type="checkbox"/>	Calibration Procedure	<input type="checkbox"/>	Test Procedures/Specification	<input type="checkbox"/>
Conceptual Design Report	<input type="checkbox"/>	Installation Procedure	<input type="checkbox"/>	Component Index	<input checked="" type="checkbox"/>
Equipment Spec	<input type="checkbox"/>	Maintenance Procedure	<input type="checkbox"/>	ASME Coded Item	<input type="checkbox"/>
Const Spec	<input type="checkbox"/>	Engineering Procedure	<input type="checkbox"/>	Human Factor Consideration	<input type="checkbox"/>
Procurement Spec	<input type="checkbox"/>	Operating Instruction	<input type="checkbox"/>	Computer Software	<input type="checkbox"/>
Vendor Information	<input type="checkbox"/>	Operating Procedure	<input checked="" type="checkbox"/>	Electric Circuit Schedule	<input type="checkbox"/>
OM Manual	<input type="checkbox"/>	Operational Safety Requirement	<input type="checkbox"/>	ICRS Procedure	<input type="checkbox"/>
FSAR/SAR	<input type="checkbox"/>	IEFD Drawing	<input checked="" type="checkbox"/>	Process Control Manual/Plan	<input type="checkbox"/>
Safety Equipment List	<input type="checkbox"/>	Cell Arrangement Drawing	<input type="checkbox"/>	Process Flow Chart	<input type="checkbox"/>
Radiation Work Permit	<input type="checkbox"/>	Essential Material Specification	<input type="checkbox"/>	Purchase Requisition	<input type="checkbox"/>
Environmental Impact Statement	<input type="checkbox"/>	Fac Proc Samp Schedule	<input type="checkbox"/>	Tickler File	<input type="checkbox"/>
Environmental Report	<input type="checkbox"/>	Inspection Plan	<input type="checkbox"/>		<input type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input type="checkbox"/>		<input type="checkbox"/>

20 Other Affected Documents

(NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision

POP-60M-002

Document Number/Revision

NA

Document Number/Revision

NA

21 Approvals

Signature

Date

Signature

Date

Design Authority LILLY L HUTH [Signature]

8/13/01

Design Agent KD JUNT [Signature]

8 15 01

Cog Eng LILLY L HUTH [Signature]

8/13/01

PE

Cog Mgr KJ LUECK [Signature]

8/21/01

QA

QA

Safety

Safety

Design

Environ

Environ

Other

HL ROACH [Signature]

8 20 01

Other

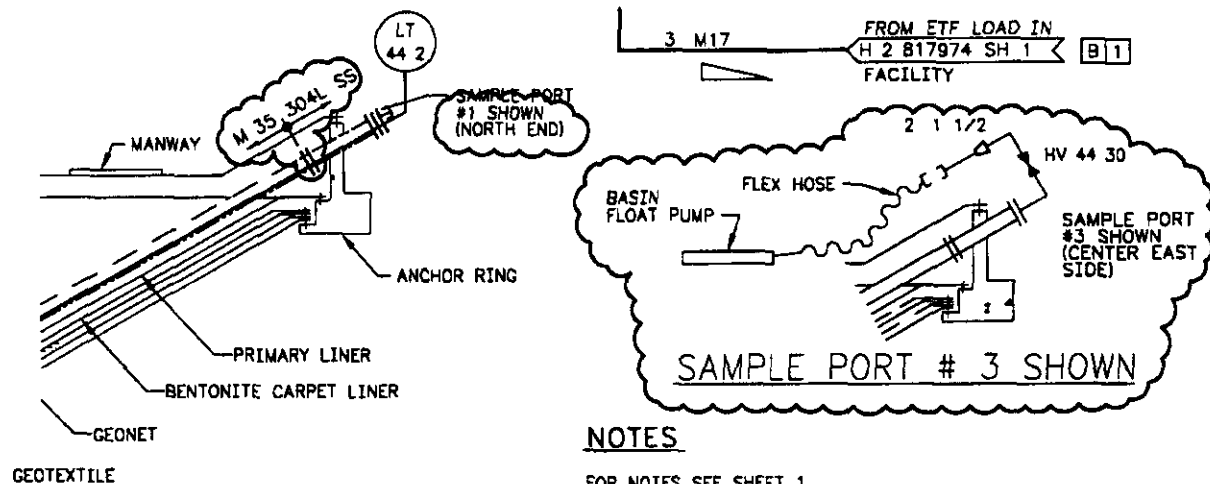
(INDEPENDENT DESIGN REVIEW)

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

H-2-88766 SH 4 ZONE C2 ADDITIONS ARE SHOWN IN CLOUDED AREAS



H-2-79592 SH 3 REVISE DETAIL 30 PLAN NOTE BY ADDING BASIN 44 TO BASIN 42

DETAIL 30 PLAN NOTE SHOWN. (REF ECN662042)PLAN

SAMPLE PORT RISER #3 CENTER EAST SIDE OF BASIN 42
 (PORT CAN BE USED TO CONNECT TO EXISTING BASIN FLOAT PUMP
 AT FLEX HOSE USING A 1 1/2 TWIN KAM KAMLOCK COUPLER
 FEMALE NPT #633 D 0740)

CPF 18

ESSENTIAL

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HNF-FMP-01 - 9507 -R 0

Page 1 of 30

FMP-CS (Facility Modification Package - Coversheet)
(Block 17, 18, 22)*

Section 1: Design Package Identification

1. Mod Title: Add ETF Sample Valves at Accessible Locations

2. USQ Required? USQ # <u>N/A</u> CX # <u>N/A</u>		3. Assigned Lead Engineer: KH Bergsman		4. Design Authority: KH Bergsman	
5. Project No./Work Package No.: EL-01-0686		6. Area 200E		7. Building 2025E	
8. System No.: 60C, 60D, 60J		9. Related FMPs/Changes: N/A		10. Incorporates ECN/DCNs: N/A	
11. Contract Mod. No.: N/A		12. Change Proposal No.: N/A		13. Lead Engineering Discipline: Process	
14. Affected Engineering Disciplines: N/A		15. Change Description (description and reason for requested change): At several locations in the ETF, ball valves, some in inconvenient locations, are used to control liquid flows during process sampling. Flow control is inadequate to prevent splashing and spillage of liquids. The proposed modification is to provide adequate flow control by adding needle valves downstream of the existing ball valves.			

Section 2: Document Index

16. Action	Document	Revision	FMP Section	Revision	FMP Page	Release To Work?
RWC	H-2-89332, Sheet 1	11	DWG-1	0	15,16	Yes
RWC	H-2-88977, Sheet 1,	12	DWG-2	0	17	Yes
RWC	H-2-88988, Sheet 1	20	DWG-3	0	18	Yes
RWC	H-2-89351, Sheet 1	7	DWG-3	0	18	Yes
I	Vendor Information	N/A	FMP-3C	0	23-30	

Continuation Sheet Attached?

☐ Yes ☒ No

Section 3: Design Authority Concurrence

17. Justification for Accepting or Rejecting Change

Change needed to improve control during process sample taking.

18. Design Authority Approval (Name, Signature, Date):

Name KH Bergsman

Signature *KH Bergsman*

Date 01/11/02

FMP-CS (Facility Modification Package - Coversheet)
(Block 17, 18, 22)*

Section 4: Approval/Distribution (Name, Signature, Date)

Engineering Approvals	Approval Designator Reviews (Ref: HNF-PRO-333)	Management Reviews
19. Design Engineer (if different from the DA and Lead Engineer) N/A	28. Quality Assurance N/A	37. Project Engineer N/A
20. Lead Engineer KH Bergsman KH Bergsman 1/11/02	29. Safety N/A	38. Project Engineering Manager (when different from Engineering Management) N/A
21. Engineering Management NJ Sullivan NJ Sullivan 1-11-02	30. Environmental N/A	39. Project Manager N/A
22. Squad Check (when required; if more than one discipline involved, sign below) N/A	31. Fire Protection N/A	40. Operations Manager (OM) DA Vasquez DA Vasquez 1/11/02
23. Other ST Willet, DA for H-2-88988 1/11/02	32. Radiological Control N/A	41. Ergonomics (when required by OM) N/A
24. Other RJ Huth, DA for H-2-89351 RJ Huth 1/11/02	33. ALARA Review N/A	42. Field Execution Manager / Startup Manager N/A
25. Other N/A	34. Other N/A	43. Other N/A
26. Other N/A	35. Other N/A	44. Other N/A
27. Other N/A	36. Other N/A	45. Other N/A

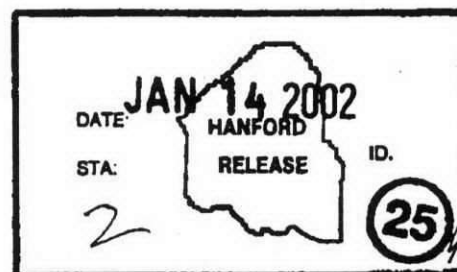
46. Modification work complete and field verified as complete for the construction activity (Block 22)*

Design Authority _____

Date _____

47. Distribution Name	MSIN
KH Bergsman	S6-72 (1)*
MW Bowman	S6-72 (1)
DA Vasquez	S6-72 (1)
LL Huth	S6-72 (1)
JM Isdell	B4-39 (1)*
NJ Sullivan	S6-72 (1)
SW Willis	S6-51 (1)*
CD Skogley	S6-72 (1)
RW Szelmeczka	S6-72 (1)
RJ Huth	S6-72 (1)
ST Willet	S6-72 (1)

48. Release:

49.
[] Not Approved/Archive

Design Authority/Date _____

WCC Planning

(* = Advance Copy)

FMP-1 (Facility Modification Package - Engineering Request/Evaluation)**Engineering Request (Block 1)***

Requestor KH Bergsman	Date 11/20/01	Need Date 12/31/01
FMP Title Add PDM sample valves at accessible locations	Building/Room Number/System Number 2025E/131/60D	

Problem Statement/Proposed Modification

The Peroxide Destruct Module reduces the concentration of peroxide, from that needed to destroy organics in Process Condensate feed at the Ultraviolet Light Oxidation units to a lower value tolerable by the Reverse Osmosis membranes. The inlet water to the PDM columns is routinely sampled and analyzed for peroxide concentration. There is an intermittent need to sample the liquid leaving each PDM column and the combined flow from both columns, to determine the performance of the PDM columns.

Currently, the valves controlling the sample flows are ball valves located at a 7' to 8' elevation. The valve for the combined flow sample is behind other piping. The valve types and locations increase the risk of splashing and contamination, when personnel draw these samples.

The proposed solution is to:

replace the 3 screwed-end ball valves with screwed-end needle valves to provide adequate flow control, extend the tubing at these sampling locations to allow the sample to be taken safely, and add quick disconnect caps.

Lead Engineer Assigned (Block 2)*

Assigned Lead Engineer (Block 2)* KH Bergsman	Date 11/20/01
---	-------------------------

Approve for Engineering Evaluation (Block 3)*

Work Package Number EL-01-00686	Estimated Evaluation Cost \$100
---	---

Engineering Management

[Signature] K.J. Roth

☒ Yes ☐ No

Date
11/20/01

If not approved, reason not approved:

FMP-2 (Facility Modification Package - Engineering Evaluation/Estimate)**Engineering Evaluation (Block 4)*****Problem Analysis**See attached page⁵ for details**Alternatives Considered**

- Do Nothing
- Don't sample the combined PDM column outlet flow
- Install ball valves in accessible locations for sampling
- Install needle valves in accessible locations for sampling
- Install quick connects downstream of PDM column outlet sample valves.


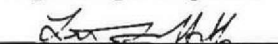
Preferred Solution

The proposed solution is to replace one screwed-end ball valve, on the combined PDM outlet flow, with a 1/4" screwed-end needle valve to provide adequate flow control and to add two 1/4" needle valves on the existing piping to provide safe access to the individual PDM column outlet flows. Downstream of each needle valve, quick disconnect caps will be installed.

See attached page⁵ for discussion of alternatives not chosen.**Cost and Schedule Estimate (Block 5)***

Estimated Construction Cost (Materials and Labor)	Estimated Engineering Cost	Total Estimated Cost
M= \$1000; L= \$4000	\$2000	\$7000

Approve for Conceptual Phase (Block 6)*

Operations Manager	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date	Cost Account Charge Number
		26 NOV 01	111230/FA20
Design Authority	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date	
KH Bergsman KH Bergsman		11/20/01	
Engineering Management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date	
		11/20/01	

If not approved, reason not approved:

*Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-5 (Facility Modification Package - Continuation Page)

FMP Section 2

Problem Analysis

Periodic sampling/analysis of the combined outlet from the PDM columns is a valuable tool in troubleshooting column performance. There are several locations where samples have been taken. Some are at convenient locations and elevations, others are not. The valves that control sample flow are $\frac{1}{2}$ " ball valves at all PDM locations.

Periodic sampling/analysis of the outlet from the individual PDM columns has not been done in the past, however considering the difficulty that ETF has had in operating the columns in the past, having the ability to conveniently and safely take these samples would improve troubleshooting capability. There are no locations where samples can be taken conveniently and safely. There are two locations where simple modifications, at screwed fittings, would provide this capability. At one, $\frac{1}{2}$ " ball valves would have to be lowered to a more convenient elevation. At the other, new valves would have to be added.

Needle valves provide much better control over flow than do ball valves. Replacing the $\frac{1}{2}$ " ball valves used for sampling with needle valves will reduce the risk of splashing and contamination. This is especially important when processing higher radiation feeds such as Basins 42 and 44, and has been identified as a desired feature by Rad Con and Operations.

All the existing valves that could be used for PDM column outlet samples are capped with screwed caps. Craft support is required to loosen these caps before samples can be taken. Adding quick connect fittings with caps will allow Operations to monitor PDM column performance when desired, even on off-shifts.

1) Do nothing, on the combined outlet sample, continues a low, but unnecessary, risk of splashing/contamination. Do nothing, for the individual column outlet samples, prevents the acquisition of information useful to troubleshooting the routine, poor PDM column performance. 2) Not sampling the combined outlet eliminates necessary information for controlling the water treatment process. 3) Installing ball valves rather than needle valves continues the low, but unnecessary, risk of splashing/contamination for little incremental benefit. 4) Using pipe caps rather than quick connects hinders acquiring samples when desired, especially during the off-shifts.

FMP-3A (Facility Modification Package - Preconceptual Plan and Design Documents)		
FMP Plan (Block 4)*		
Preconceptual Phase Plan		
Needed	Design Input Documents	Notes
N/A	Functional Requirements Document (required for Line Item Projects)	
N/A	Scope Description Document (required for General Plant Projects)	
X	Identify/Review Applicable Codes and Standards	ASME B31.3, LWPF pipe codes
N/A	Applicable Regulatory Requirements	
X	Research Vendor Information	New valves
N/A	Make/Buy Decision	
N/A	Resource Plan for Engineering/Project Support	
X	Identify Engineering Drawings	Page 9
N/A	Identify Need for Procurement Specification	
N/A	Identify Need for Construction Specification	
Design Analysis Documents		
N/A	Engineering Study	
N/A	Preliminary Design Calculations	
N/A	Preliminary Safety Analysis/USQ Screen	
N/A	Preliminary Environmental (NEPA) Review	
N/A	Structures, Systems, and Components Functional Analysis	

* Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-3B (Facility Modification Package - Conceptual Plan)		
FMP Plan (Block 7)*		
Conceptual Phase Plan		
Needed	Document	Notes
X	Design Criteria	page 11
X	List of Baseline Documents to be modified	Page 9
X	List of Affected Documents	Page 10
X	Design Verification Method/Plan	Page 13
X	Applicable Codes and Standards	ASME B31.3, LWWF pipe codes
N/A	Conceptual Design Cost and Schedule	
N/A	Preliminary USQ Screen	
X	Environmental Screen/NEPA	Page 22
N/A	Preliminary Job Hazard Analysis/Automated Job Hazard Analysis (AJHA)	
N/A	Formal Hazards Analysis (if required)	
N/A	Preliminary Safety Analysis Report	
N/A	Identify/Review Fire Hazards Analysis (FHA)	
N/A	Identify/Review Criticality Safety Evaluation Report (CSER)	
N/A	Perform Preliminary ALARA, Ergonomics, and Safety Review	
N/A	3 rd Party Inspector Review (e.g. NEC, Water Purveyor, Pressure Vessel)	
N/A	Engineering Walkdowns/Surveys	
N/A	Drawing Searches	
X	Plant Forces Work Review	Included in EL-01-00686
N/A	System Design Description	
N/A	Long-Lead Equipment Specifications/Procurement	
N/A	Identify Construction Work Authorization Envelope	
N/A	Identify need for Interface Control Documents/ Memoranda of Understanding/Memoranda of Agreement	
N/A	Identify need for Engineering Work Plan	
N/A	Prepare Formal Conceptual Design	
N/A	Prepare Quality Assurance Plan (Required for Line Items/General Plant Projects)	
	N/A	
	N/A	

*Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-3C (Facility Modification Package - Execution Plan)		
FMP Plan (Block 7)*		
Execution Phase Plan		
Detail Design		
Other Design Input Documents		
Needed	Document	Notes
X	Vendor Information	Pages 23-30
Other Design Analysis Documents		
N/A	Design Calculations	
X	Job Hazards Analysis/Automated Job Hazard Analysis	Included in EL-01-00686
X	Design Verification	Page 13
Design Output Documents		
N/A	Detailed Design Drawings	
N/A	Final USQ Screen	
N/A	Procurement Specification	
N/A	Construction Specification	
X	Acceptance Test Plan / Inspection Plan	Page 14
X	Installation Instructions	In EL-01-00686
X	Bill of Materials	parts shown on pages 18-21
N/A	Required Permits	
	N/A Hot Work Permit	
	N/A Excavation Permit	
	N/A Confined Space Permit	
	N/A Radiation Work Permit	
	N/A Elevated Work Permit	
X	Work Package	EL-01-00686
N/A	Redline Drawing Set (s)	
Acceptance Testing and Turnover		
X	Acceptance Testing	Page 14
N/A	3 rd Party Inspector Review (e.g. NEC, Water Purveyor, Pressure Vessel)	
N/A	As-Built Set of Drawings	
N/A	Punchlist	

* Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-4 (Facility Modification Package - Engineering Documents to be Modified)

List of Engineering Documents to be Modified (Block 7)*

[illegible]

Submit to Document Control? (Block 10)*

[] Yes [X] No Lead Engineer
K. H. Bergsman

Date 4/9/02

*Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001. A-6003-072 (10/01)

FMP-5 (Facility Modification Package – Potentially Affected Documents)

Potentially Affected Document (Block 7)*

[illegible]

*Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-6 (Facility Modification Package - Preliminary Evaluations/Functional Requirements)**Perform Preliminary Evaluations (Block 8)***

See page 22 for Hanford NEPA Screening Form.

Problem Analysis Revision

During the detailed design development, additional information was identified that modified the problem analysis. See page 12 for details.

Preferred Solution Revision

During the detailed design development, additional information was identified that modified the preferred solution. See page 12 for details.

Functional Requirements, Design Criteria, and Acceptance Criteria (Block 9)***Design Criteria -**

1. Needle valves will be used to provide flow control during sampling. Valves having flow characteristics that are similar to the valves currently used at ETF are preferred. (Swagelok -SS-26VS8, 22-1VS8, SS-1RS8 and SS-1VS4 are currently used for similar sample flow control).
2. Valves/plug combination will be located for convenient, simultaneous use by ETF Operators. There will be sufficient room for a catch bucket and sample container under the plug.
3. Easily removed plugs will be used, when possible to facilitate sample collection.
4. Piping, fittings and jointing methods will meet the requirements of ASME B31.3, Category D fluid service and Pipe Code 153T, in accordance with ETF Pipe Class Specification (Adtechs S-136H-001), except wall thickness of tubing used may be 0.035" for 1/4" and 3/8" tubing, and 0.049" for 1/2" tubing; and tell-tale plugs downstream of sampling points may be clamped flexible tubing.
5. Pipe and fitting sizes will be at least 1/4" diameter

Acceptance Criteria --

1. Design meets the design criteria.

Detailed Conceptual Design Document Required? (Block 11) ☐ Yes ☒ No

Design Authority

KH Bergsman *KH Bergsman*

Date

1/11/02

**(If Conceptual Design Document Required)
Engineering Management**

Date

*Block numbers refer to block numbers on the FMP Flowchart (HNF-PRO-2001, Appendix A) and procedure steps within HNF-PRO-2001.

FMP-8 (Facility Modification Package - Continuation Page)**FMP Section****Problem Analysis Revision**

During the detailed design development, additional information was identified that modified the preferred solution.

1. quick-disconnect plugs are used at numerous locations throughout the ETF. Those that are spring-loaded require significant force to separate the pieces. If the valve upstream of the quick-disconnect plug leaks, the downstream tubing will accumulate liquid. Then when the quick-disconnect plug is opened by the required force, the contained liquid will be thrown free, creating a small liquid spill and possibly contaminating the people removing the plug. Use of a plug that disengages easily and without the use of tools, such a cam locking plug or a clamped tube (a tell-tale) would minimize this contamination issue without hindering sample collection.
2. the piping used to obtain samples of the UV/OX outlet flow and the CT slurry have similar concerns. For the UV/OX outlet flow, a 3/8" ball valve is used for flow control during the periodic sampling, while for the CT slurries, 1/2" ball valves are used. Using a needle valve with an easily removed plug would improve control when taking these samples too. Because of the potential for the particulate in the CT slurries to plug the needle valve, these needle valves should be easily removable.
3. adding a needle valve downstream of a ball valve, rather than replacing a ball valve with a needle valve, provides better, positive shutoff. Existing ball valves should be left in service, unless this unduly complicates the modification.
4. the flow from the existing PDM inlet sample point is controlled with a 1/4" needle valve. Using 1/4" needle valves with the same flow characteristics as the inlet valve, rather than the 1/4" needle valves initially identified, will eliminate potential operator confusion on how far the needle valves need to be opened to safely obtain the sample.

Preferred Solution Revision

The proposed solution is to

- a. add 1/2" needle valves on the PDM column outlet flows, downstream of the existing ball valves.
- b. add 3/8" needle valves on the CT slurry sample points, downstream of the existing ball valves.
- c. add a 1/4" needle valve, on the UV/OX outlet flow, downstream of the existing ball valves.
- d. add easily removable plugs, downstream of each needle valve.

FMP-7 (Facility Modification Package - Detailed Design Verification)

Design Verification Record (Block 15) (See drawings, calculations, specifications, and other design products)

Design Verification Method (Select method(s) and provide explanation of how to be performed):

☒ Peer Review☐ Formal Design Review☐ Alternate Calculations☐ Qualification Testing

Design Authority

KH Bergman KH Bergman

Date

11/11/02

Design Verification Details

Design meets design criteria provided in FMP-6. (P.11)

Design Verifier

KH Bergman

Date

11/11/02

FMP-8 (Facility Modification Package - Continuation Page)

FMP Section

Inspection and Acceptance

Examination shall be in accordance with ASME B31.3 Paragraph 341.4.2

Verify materials and components comply with specifications and are free of defects by visual examination of a sufficient number necessary to satisfy the examiner. Verify materials and components are of the specified grade through the use of certifications, records, or other evidence.

Verify erected piping contains no defects requiring repair or replacement and there are no deviations from the intent of the design evident. Include a random visual examination of threaded, bolted and other non-welded type joints to verify compliance to the applicable requirements of ASME B31.3 Paragraph 335.

Leak testing shall be in accordance with ASME B31.3 Paragraph 345.7

Perform an initial service leak test at normal operating pressure and temperature for a minimum of 10 minutes. Examine all joints and connections for leaks. Record the test fluid in the work package. Verify there are no leaks.

FMP-8 (Facility Modification Package - Continuation Page)

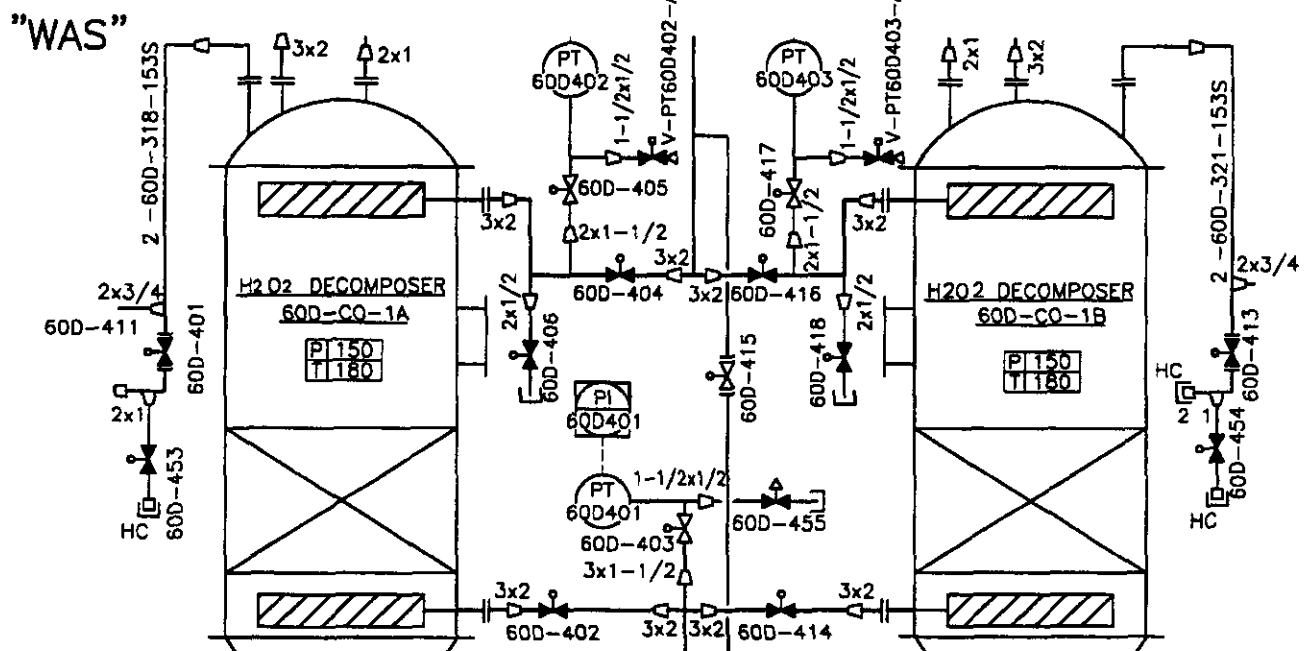
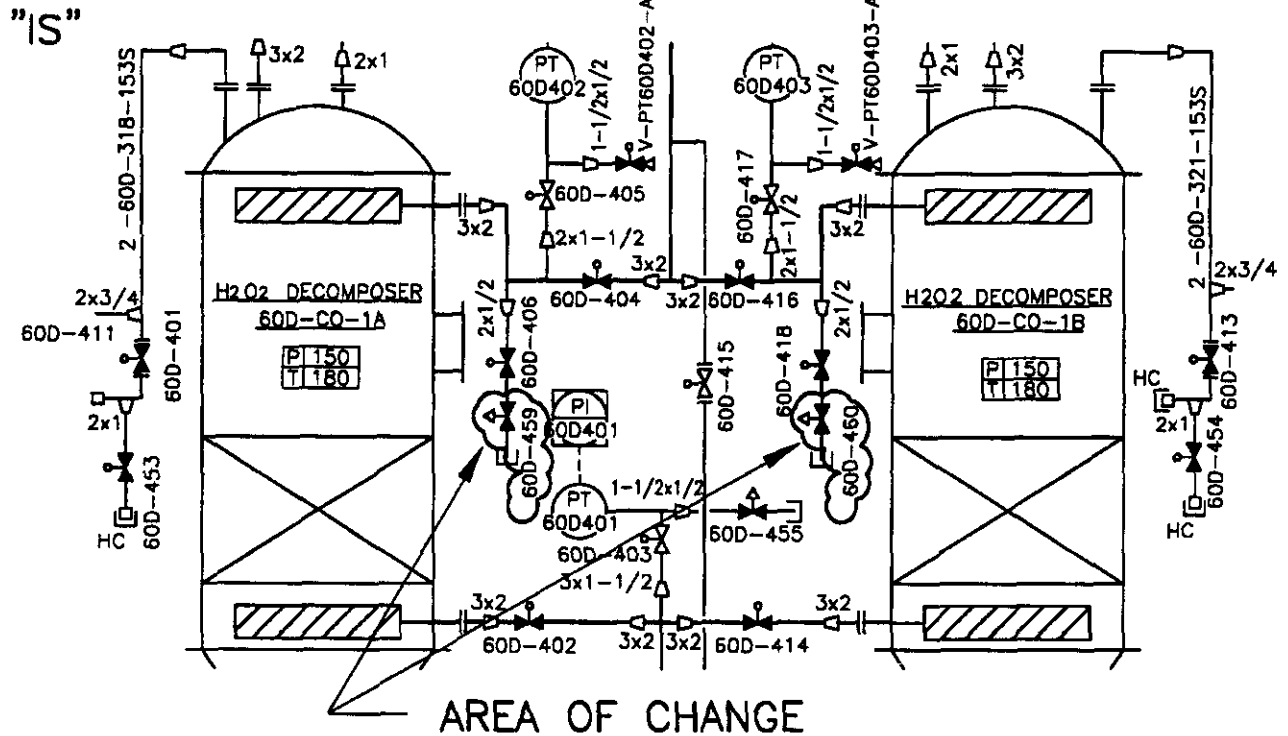
FMP Section

DWG-1

Page 1 of 2

H-2-89332 SH 1 ZONE B6 REVISE AS SHOWN IN CLOUDED AREA
(ADD NEEDLE VALVES)

SEE SKETCH-1 PAGE 1 of 1 THIS FMP FOR MATL CHANGES



FMP-8 (Facility Modification Package - Continuation Page)

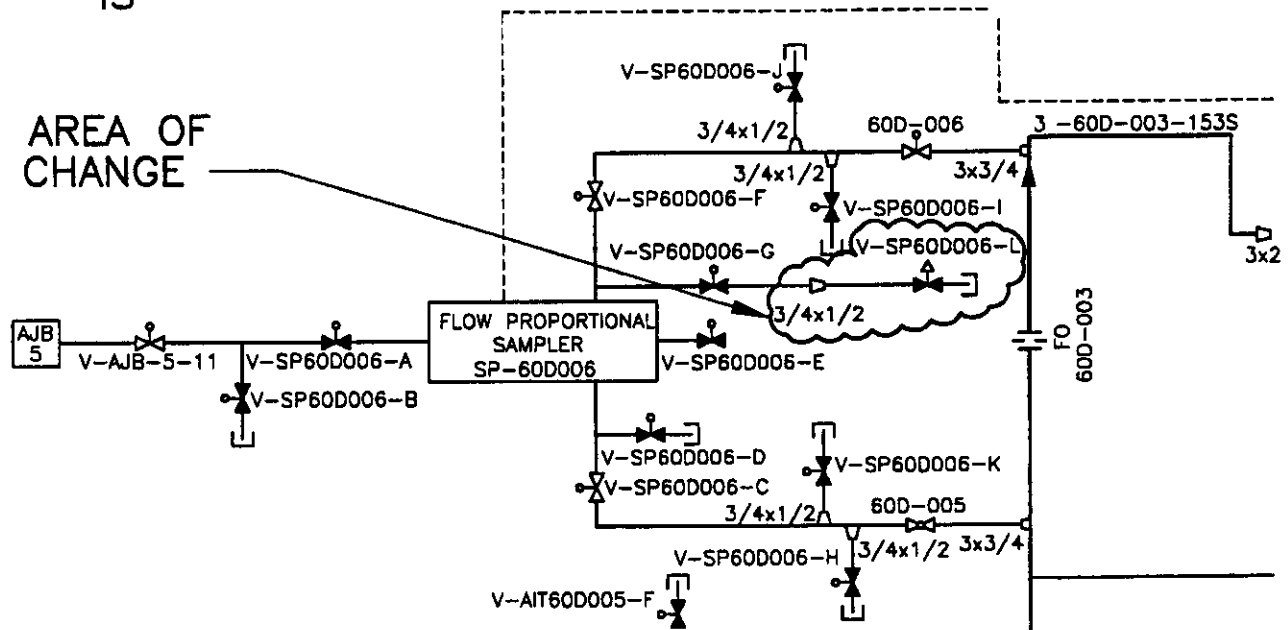
FMP Section

DWG-1

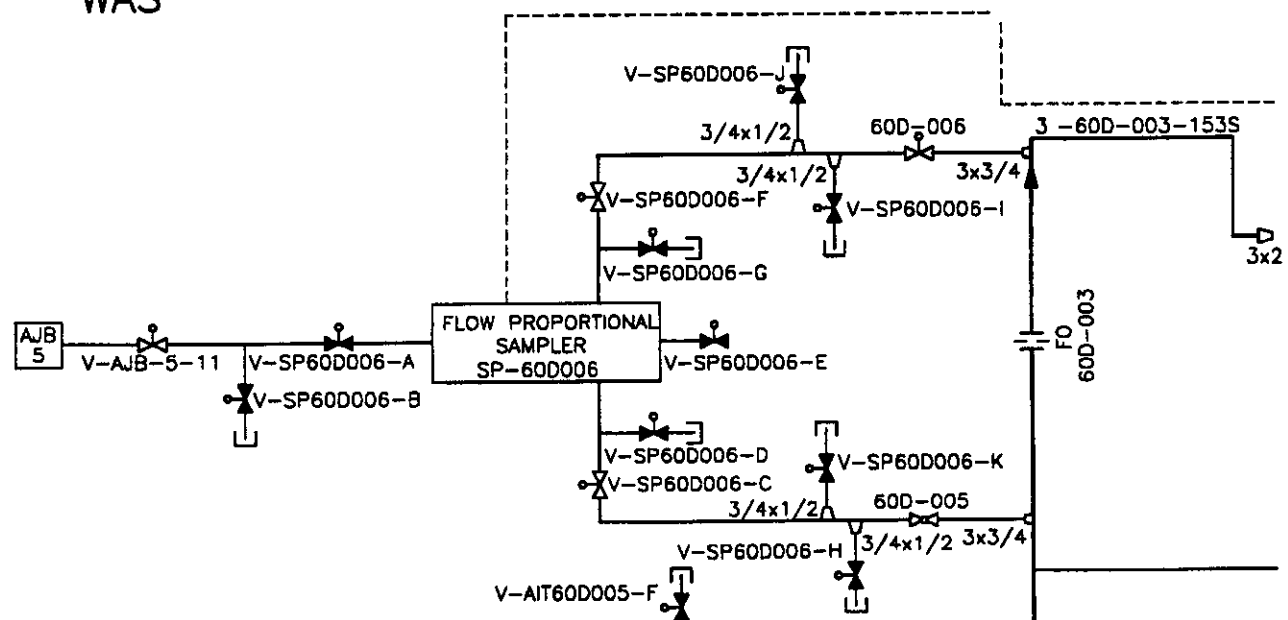
Page 2 of 2

H-2-89332 SH 1 ZONE F4 REVISE AS SHOWN IN CLOUDED AREA
 (ADD 3/4x1/2 REDUCER AND ADD NEEDLE VALVE)
 SEE SKETCH 2 PAGE 1 of 1 THIS FMP FOR MATL CHANGES

"IS"



"WAS"



FMP-8 (Facility Modification Package - Continuation Page)

FMP Section

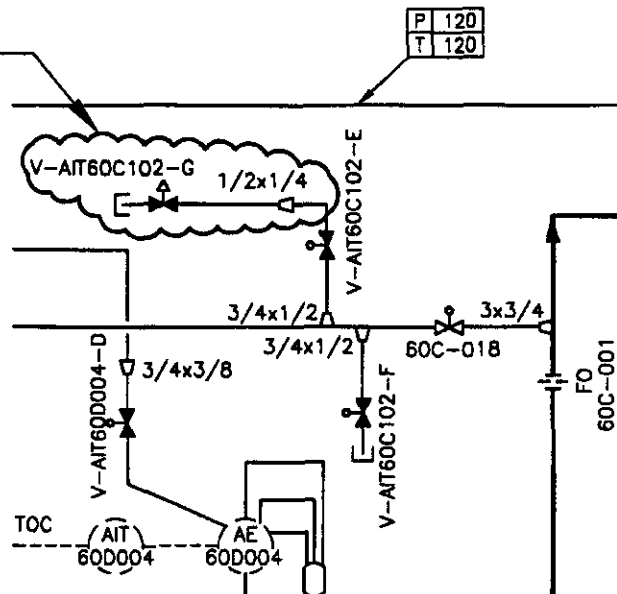
DWG-2

Page 1 of 1

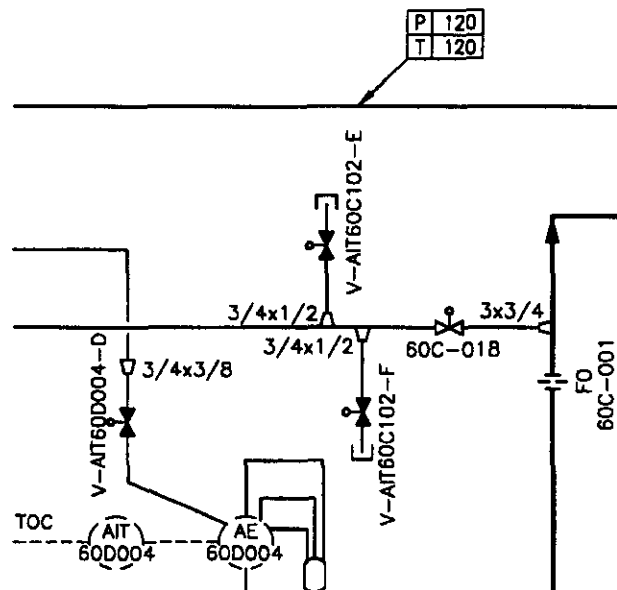
H-2-88977 SH 1 ZONE E7 REVISE AS SHOWN IN CLOUDED AREA
 (ADD 1/2x1/4 REDUCER AND ADD NEEDLE VALVE)
 SEE SKETCH-3 PAGE 1 of 1 THIS FMP FOR MATL CHANGES

"IS"

AREA OF CHANGE



"WAS"



FMP-8 (Facility Modification Package - Continuation Page)

FMP Section

DWG-3

Page 1 of 1

H-2-89351 SH1 ZONE E3 REVISE AS SHOWN

"IS" CAP SCREWED
OR QUICK DISCONNECT
OR TELL TALE WITH CLAMP

"WAS"

CAP SCREWED
OR QUICK DISCONNECT

H-2-88988 SH 1 ZONE F8 ADD VALVE V-16 AND V-17 AS SHOWN

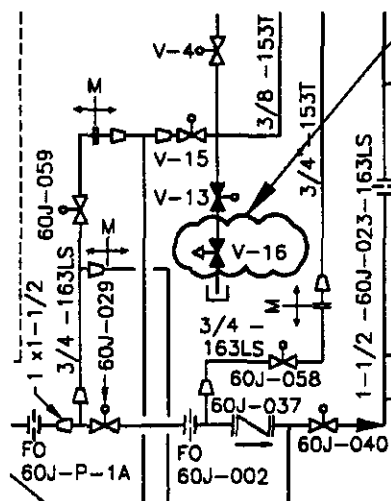
V-16 = V-AIT60J012A-G ZONE C6

V-17 = V-AIT60J012B-G, ZONE C3

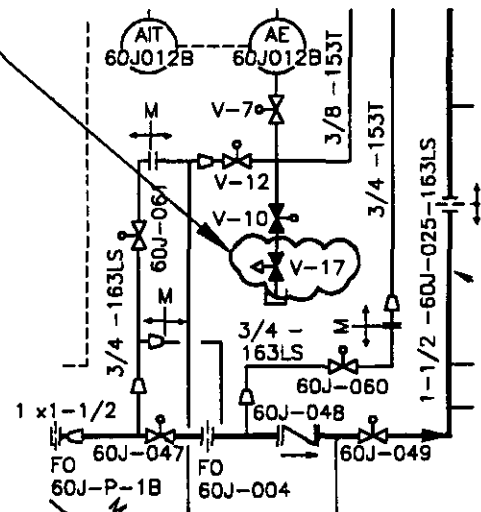
H-2-88988 SH 1 ZONE C6 AND C3 REVISE AS SHOWN IN CLOUDED AREA

(ADD NEEDLE VALVE WHITEY 3/8 -SS-1VS6 AND 3/8 O D TUBING CODE 153T)
ADDITIONAL SUGGESTED PARTS 3/8 INSERT SWAGELOK SS-605-4 TYGON TUBING
3/8 O D x 1/4 I D AND TUBE CLAMP

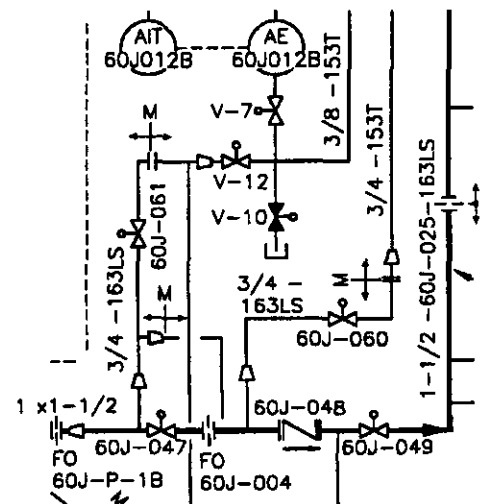
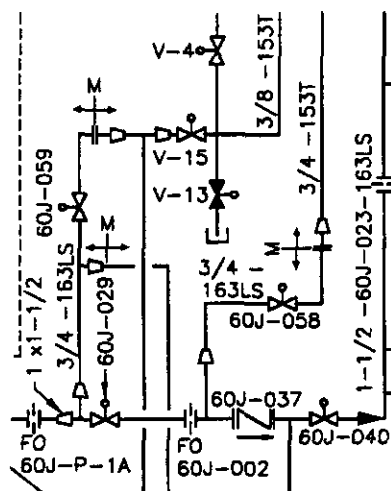
"IS"



AREA OF CHANGE



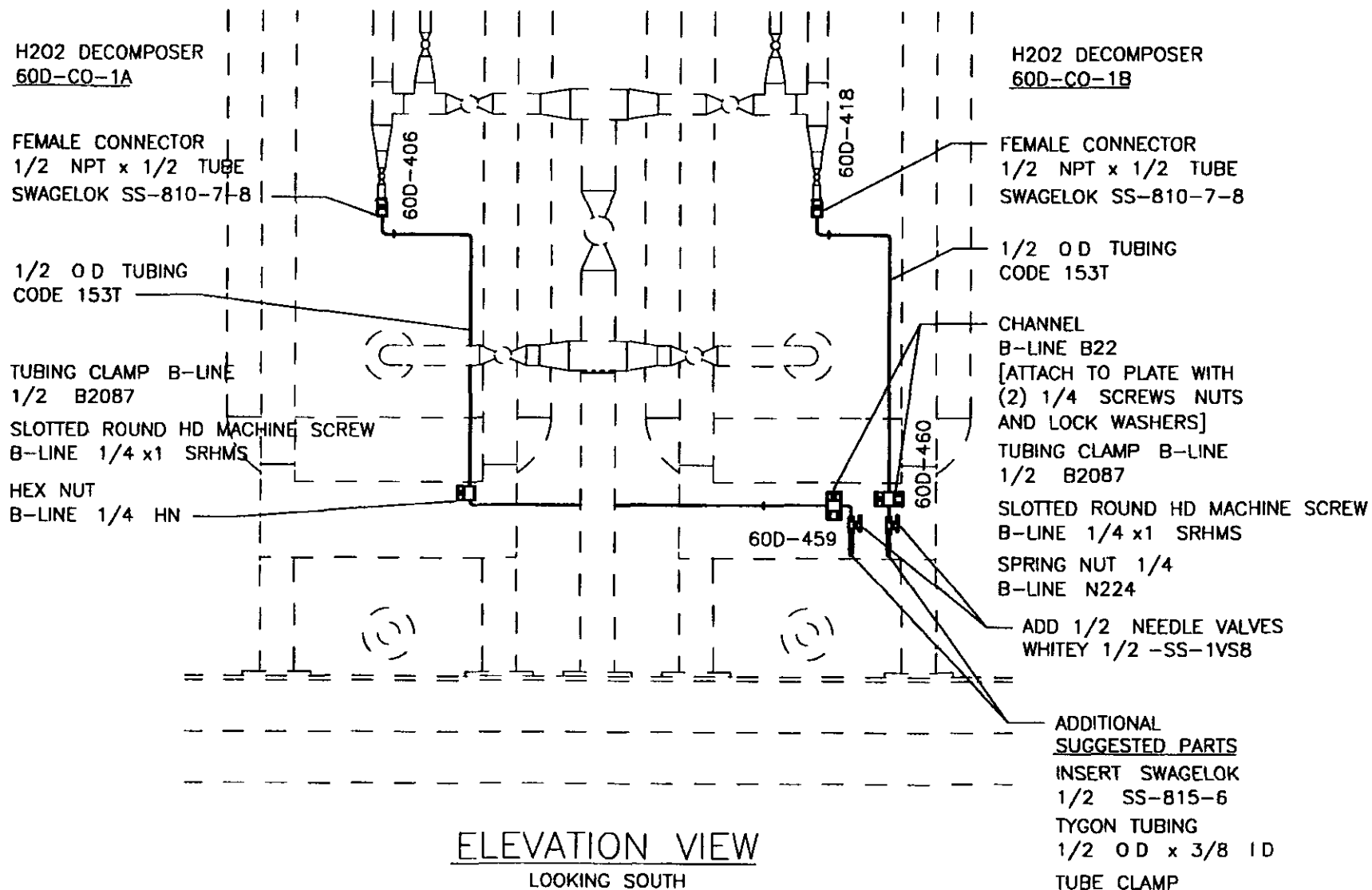
"WAS"



NOT FOR DRAWING INCORPORATION

NOTES

- 1) FIELD ROUTE AND SUPPORT TUBING APPROXIMATE AS SHOWN ADJUSTMENTS MAY BE MADE DUE TO FIELD CONDITIONS
- 2) SEE DWG 1 PAGE 1 OF 2 THIS FMP FOR SUPPORTING P&ID CHANGES
- 3) TUBE AND SUPPORT COMPONENTS MAY BE CHANGED WITH CONCURRENCE OF DA



FMP Section

Sketch-1

FMP-8 (Facility Modification Package - Continuation Page)

Page 1 of 1

HNF-FMP-01-9507-R0 Page 19 of 30

FMP-8 (Facility Modification Package - Continuation Page)

FMP Section

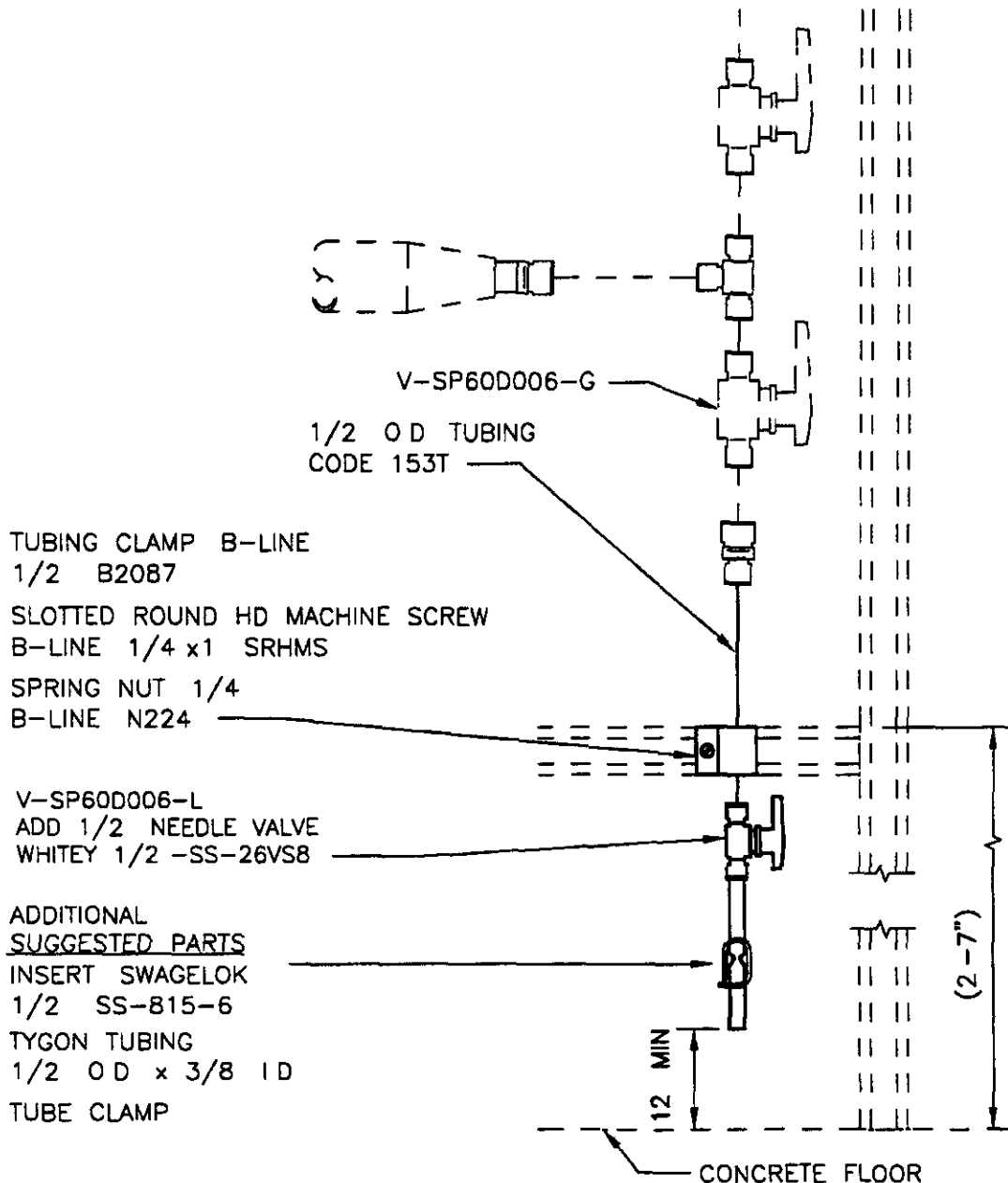
Sketch-2

Page 1 of 1

NOT FOR DRAWING INCORPORATION

NOTES

- 1) FIELD ROUTE AND SUPPORT TUBING APPROXIMATE AS SHOWN
ADJUSTMENTS MAY BE MADE DUE TO FIELD CONDITIONS
- 2) SEE DWG-1 PAGE 2 OF 2 THIS FMP FOR SUPPORTING P&ID CHANGES
- 3) TUBE AND SUPPORT COMPONENTS MAY BE CHANGED WITH CONCURRENCE
OF DA

ELEVATION VIEW

LOOKING SOUTH

FMP-8 (Facility Modification Package - Continuation Page)

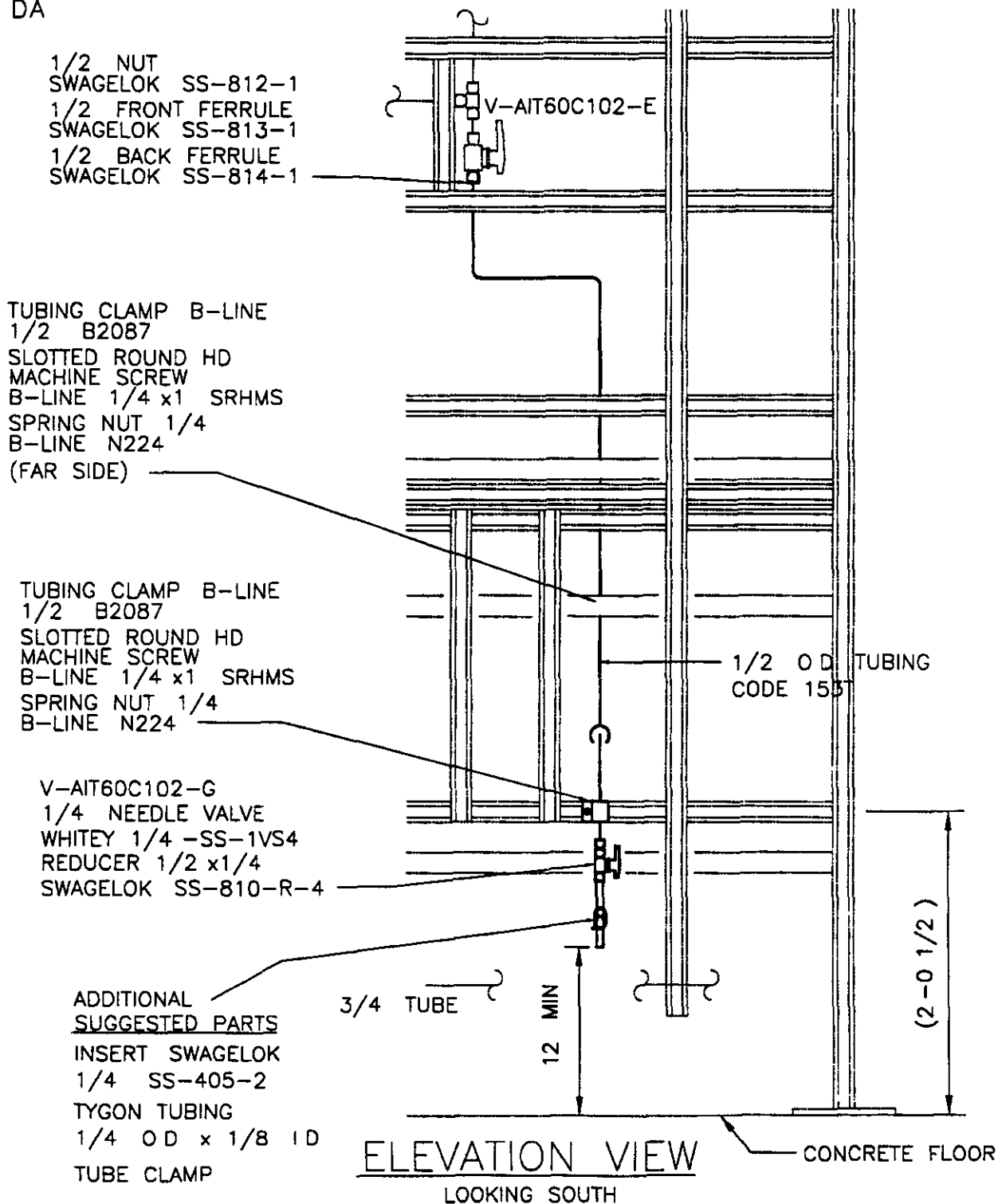
FMP Section

Sketch-3

Page 1 of 1

NOT FOR DRAWING INCORPORATION
NOTES

- 1) FIELD ROUTE AND SUPPORT TUBING APPROXIMATE AS SHOWN
ADJUSTMENTS MAY BE MADE DUE TO FIELD CONDITIONS
- 2) SEE DWG-2 PAGE 1 OF 1 THIS FMP FOR SUPPORTING P&ID CHANGES
- 3) TUBE AND SUPPORT COMPONENTS MAY BE CHANGED WITH CONCURRENCE
OF DA



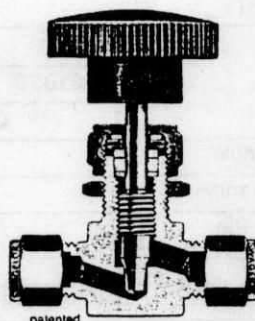
HNF-FMP-9507-RO Page 22 of 30

Hanford NEPA Screening Form <small>For NEPA requirements see HNF RD-8908. Answer questions YES or NO, and list NUMBER if applicable.</small>	
Work Item Title:	PDM Sample Valve Installation
Work Package Number	EL 01 00686 /M
Project Description. (please limit to 6 lines)	
Add needle valves to several MTT process lines within Building 2025E to improve safety of liquid sampling for process monitoring	
A INTEGRAL ELEMENTS <input type="radio"/> Yes <input checked="" type="radio"/> No Will work threaten to violate environmental laws, regulations, permits or safety requirements? <input type="radio"/> Yes <input checked="" type="radio"/> No Will work involve construction/expansion of waste treatment, storage, disposal facilities? <input type="radio"/> Yes <input checked="" type="radio"/> No Will hazardous substances be disturbed allowing uncontrolled/unpermitted releases? go to B	
B ECOLOGICAL RESOURCES <input type="radio"/> Yes <input checked="" type="radio"/> No Will work affect Wetlands/Aquifers/ALE Reserve? <input type="radio"/> Yes <input checked="" type="radio"/> No Will work occur within 1/4 mile of Columbia River (Hanford Reach National Monument)? <input type="radio"/> Yes <input checked="" type="radio"/> No Will wildlife or natural habitat be disturbed? If all answers are NO go to C. If any answer is YES, get Ecological Review NUMBER. _____ then go to C.	
C CULTURAL RESOURCES <input type="radio"/> Yes <input checked="" type="radio"/> No Does the work require excavations or surface disturbing activities? Obtain permit if required. <input type="radio"/> Yes <input checked="" type="radio"/> No Does the work require building or equipment modifications to listed historic structures? If all answers are NO, and all conditions have been met and the SWCX applies, go to D. If any answer is YES, a Cultural Resources Review is required. Last review NUMBER. _____ NOTE: If adverse impacts are identified, go to E	
D SITE-WIDE CATEGORICAL EXCLUSION (SWCX) <input checked="" type="radio"/> Yes <input type="radio"/> No In evaluating potential environmental impacts, was Waste Minimization considered? See HNF-PRO-462. <input checked="" type="radio"/> Yes <input type="radio"/> No Is the work covered by SWCX? If YES list SWCX that applies B2 5 print form and sign, if NO Go to E	
E SITE-WIDE CX DOES NOT APPLY <input type="radio"/> Yes <input checked="" type="radio"/> No Does other DOE approved NEPA documentation apply for this activity? If yes provide applicable document number DOE/RA. _____ DOE/EIS. _____ Other. _____ If CX or EA preparation may be needed, contact FHES 376-4373	
Signature Reviewer: <u>KH Bergman</u> Phone: <u>373 3465</u> (Initiator Cog. Engineer Scheduler Planner) Concurrence: <u>MW Bowman</u> Date: <u>1302</u> (Manager Env Compliance Officer FHES)	
SWCX is not valid until any applicable Cultural/Ecological Resource Reviews are received and attached to this form. <div style="border: 1px solid black; padding: 5px; width: fit-content;"> SWCX cannot be used if the action is part of an activity under review in an EA/EIS. MAINTAIN A COPY IN THE APPLICABLE PROJECT FILE OR WORK PACKAGE </div> A-6001-497 (11/00)	

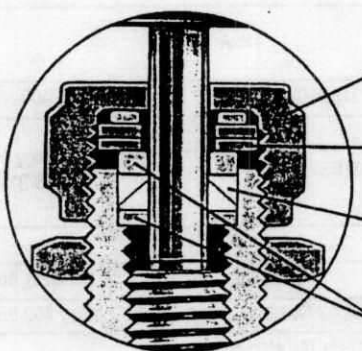
Swagelok®
Catalog MS-01-43

Integral Bonnet Needle Valves

"O", "1" & "18" Series



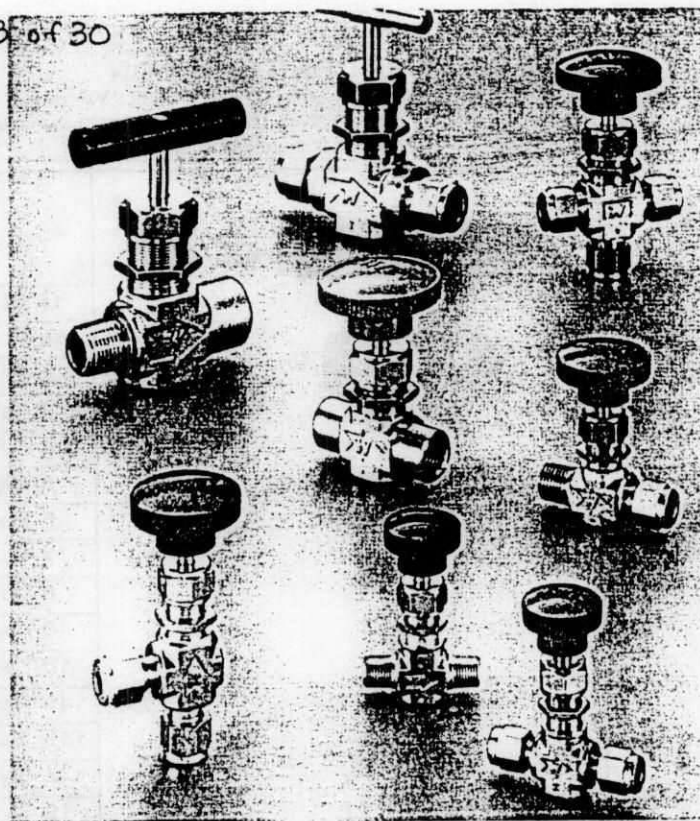
FEATURES/BENEFITS



LIVE LOADED PACKING SYSTEM

- Packing nut - makes external adjustments fast and easy.
- Packing springs - live-load packing to reduce fugitive emissions.
- 2-piece chevron packing - offers improved sealing over conventional packing designs.
- Fully supported packing - reduces need for adjustment.

- Pressures to 5000 psig (345 bar)
- Temperatures to 450°F (232°C) with standard PFA packing; up to 600°F (315°C) with optional PEEK packing
- Panel mounting standard
- Metal-to-metal and soft seat stems
- Choice of materials - 316 stainless steel, alloy 400, brass, and plated carbon steel
- Straight, angle, and cross pattern body styles
- Variety of end connections include gageable SWAGELOK® Tube Fittings, male NPT, female NPT, and ISO, BSP, DIN and JIS tapered pipe ends
- Orifice sizes of 0.080" ("O" Series), 0.172" ("1" Series), 0.250" ("1" Series), and 0.375" ("18" Series)
- Flow coefficients (C_v) from 0.09 to 1.80
- Every valve is factory tested



TECHNICAL DATA

These ratings are for a standard valve having PFA packing. Optional seal materials will affect the temperature rating. See *Stem Packing Seals* on Page 4.

VALVE MATERIAL	STEM TYPE	TEMPERATURE RATING	PRESSURE RATING @ 100°F (38°C)
316 Stainless Steel	Metal-to-metal	-65°F to 450°F (-54°C to 232°C)	5000 psig (345 bar)
	Kel-F	-65°F to 200°F (-54°C to 93°C)	
Alloy 400	Metal-to-metal	-65°F to 450°F (-54°C to 232°C)	3000 psig (207 bar)
	Kel-F	-65°F to 200°F (-54°C to 93°C)	
Brass	Metal-to-metal	-65°F to 400°F (-54°C to 204°C)	
	Kel-F	-65°F to 200°F (-54°C to 93°C)	
Plated Carbon Steel	Metal-to-metal	-20°F to 350°F (-29°C to 176°C)	
	Kel-F	-20°F to 200°F (-29°C to 93°C)	

WORKING PRESSURE

ANSI GROUP		2.2		N/A		N/A		3.4	
MATERIAL NAME CLASS (ANSI)		316SS 2080		Brass N/A		Steel ¹ N/A		Alloy 400 1500	
TEMPERATURE @ PRESSURE		psig	bar	psig	bar	psig	bar	psig	bar
-65°F (-54°C) to	100°F (38°C)	5000	345	3000	207	3000	207	3000	207
	200°F (93°C)	4295	296	2350	162	2730	188	2640	182
	300°F (148°C)	3875	267	2050	141	2660	183	2470	170
	350°F (176°C)	3715	256	1470	101	2615	180	2430	167
	400°F (204°C)	3560	245	390	27	—	—	2390	165
	450°F (232°C)	3435	238	—	—	—	—	2380	164

¹ Carbon steel valves are rated at a low temperature of -20°F (-29°C).

To determine kPa, multiply psig by 6.89.

For complete information on ANSI Class ratings, refer to *Technical Bulletin No. 4*.

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Pressure ratings for tubing used with SWAGELOK Tube Fitting ended valves are determined by the tubing material and wall thickness. Please see the *Tubing Data* sheet, located in subsection 5 *Technical Information* of your Master Product Binder. It contains suggested working pressures for various tubing sizes, materials and wall thicknesses.



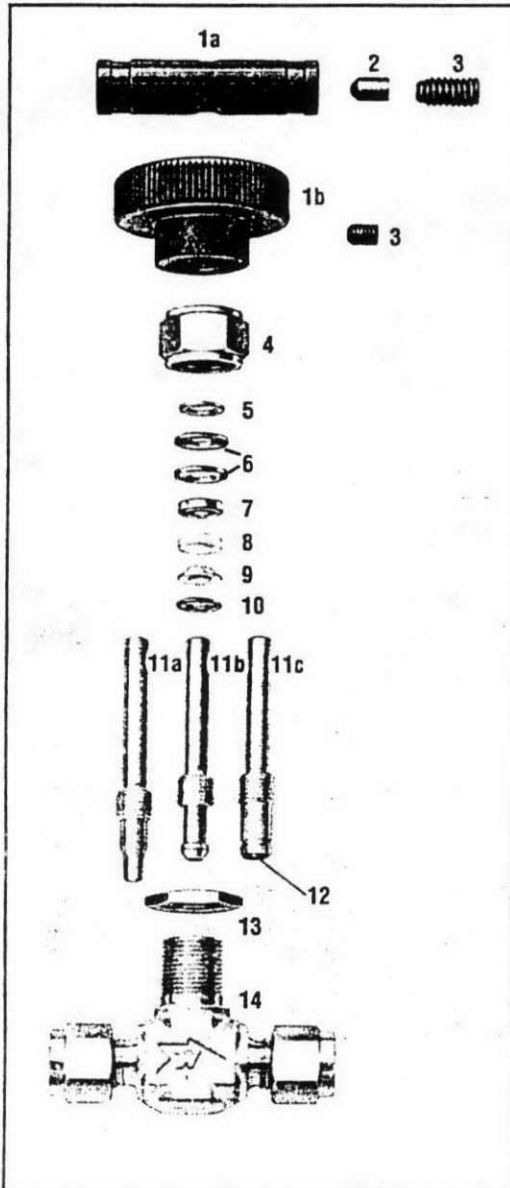
A SWAGELOK COMPANY

WHITEY Co.

318 Bishop Rd., Highland Heights, OH 44143 U.S.A.

MATERIALS OF CONSTRUCTION

Knob handles are standard on the "O" and "1" Series Valves. Bar handles are standard on the "18" Series Valves. Optional handles are available on all series - Refer to Page 4 for selection and ordering information.



Wetted parts numbered in red.

Lubrication: Tungsten disulfide and fluorocarbon base.

TESTING

Standard Production Test - Every valve is factory tested @ 1000 psig (68 bar) for leakage at the seats to a maximum allowable leak rate of 0.1 scc/min. The packings are tested for no detectable leakage.

Optional Hydrostatic Test - This hydrostatic shell test is performed with deionized water at 1-1/2 times the working pressure.

Other optional tests are available. Consult your Authorized SWAGELOK Sales & Service Representative.

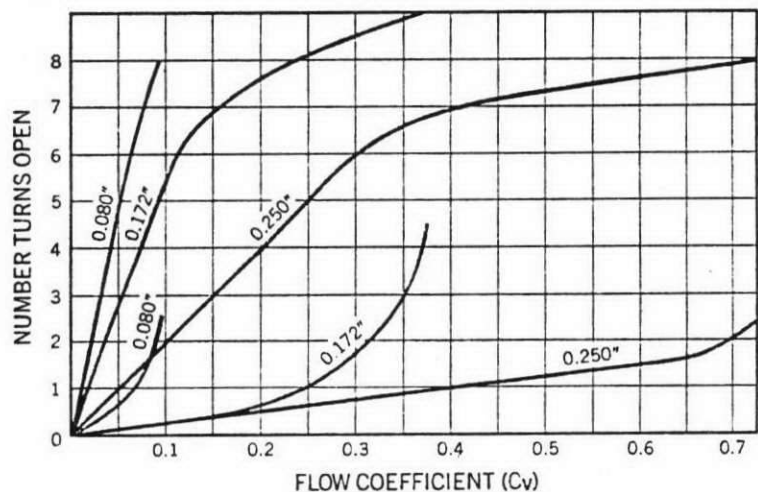
	VALVE BODY MATERIALS			
	316SS	Brass	Steel	Alloy 400
	GRADE/ASTM SPECIFICATION			
1a Bar Handle	Aluminum			
1b Knob Handle	Phenolic			
2 Handle Pin	Steel			
3 Set Screw				
4 Packing Nut	316SS/A276	Brass 360/B16	12L14/A108	Alloy R-405/B164
5 Gland ²	Stainless Steel			
6 Packing Springs ³	17-7PH/A693			
7 Packing Gland	316SS/A276, A167, B783			
8 Upper Packing	PFA			
9 Lower Packing				
10 Lower Gland	316SS/A167			Alloy 400/B127
11a Regulating Stem	316SS/A276			Alloy R-405/B164
11b Vee Stem				
11c Soft Seat Stem				
12 Stem Tip (Soft Seat)	Kel-F (CTFE)			
13 Panel Nut	Stainless Steel	Brass 360/B16		Stainless Steel
14 Body	316SS/A182	Brass 377/B283	11L17/A108	Alloy 400/B564

² Utilized in valves with the following orifice size: 0.080 and 0.172 in. (2.0 and 4.4 mm).

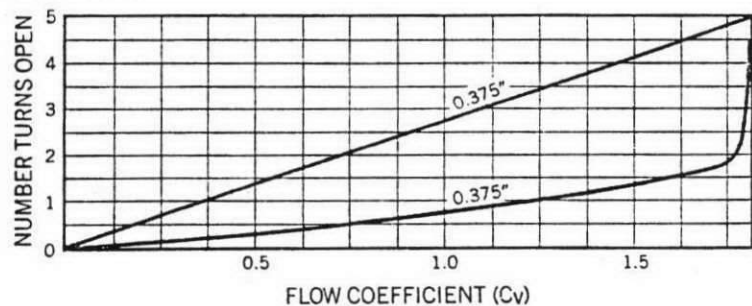
³ Number of springs will vary depending on valve series.

FLOW COEFFICIENT (C_v) @ TURNS OPEN

"O" & "1" Series ■ Regulating Stem ■ Vee or Kel-F Stem



"18" Series



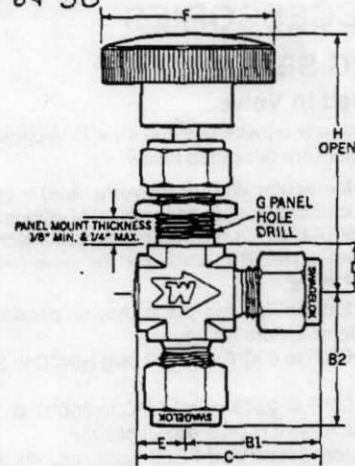
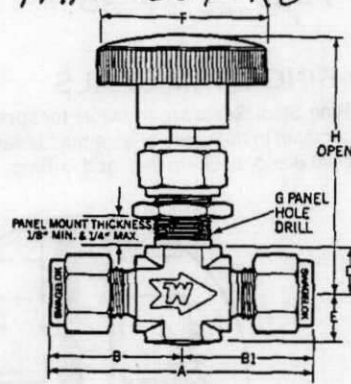


TABLE OF DIMENSIONS

BASIC ORDERING NUMBER	ORIFICE		C _v	CONNECTION SIZE		DIMENSIONS (inches)														
	In.	mm		INLET	OUTLET	A	B	B1	B2	C	D	E	F	G	H OPEN					
-ORF2	0.080	2.0	0.09	1/8 Female NPT		1.88	.94	.94	.94	1.25	.44	.31	1.00	.47	2.29					
-ORM2				1/8 Male NPT		1.50	.75	.75	.75	1.06										
-ORM2-S2				1/8 Male NPT	1/8 SWAGELOK	1.72			.75											
-ORS2				1/8 SWAGELOK		1.94	.97	.97	.97	1.28										
-ORS3MM				3mm SWAGELOK					.97											
-1RF2	0.172	4.4	0.37	1/8 Female NPT		1.62	.81	.81	.81	1.19	.44	.38	1.38	.53	2.34					
-1RM2				1/8 Male NPT																
-1RM4				1/4 Male NPT		1.96	.98	.98	.98	1.36										
-1RM4-S4				1/4 Male NPT	1/4 SWAGELOK	2.11			.98											
-1RS6MM				6mm SWAGELOK		2.26	1.13	1.13	1.13	1.51										
-1RS4				1/4 SWAGELOK					1.13											
-1RS8MM	8mm SWAGELOK		2.34	1.17	1.17	1.17	1.55	.50	.50	1.88	.78	2.81								
-1RF4	1/4 Female NPT		2.12	1.06	1.06	1.06	1.56													
-1RF4RT®	1/4 ISO Female Tapered																			
-1RM4-F4	1/4 Male NPT	1/4 Female NPT	2.19	1.13	1.29	1.13	1.79													
-1RM4-S6	1/4 Male NPT	3/8 SWAGELOK	2.42																	
-1RM6	3/8 Male NPT		2.26										1.13	1.13	1.63					
-1RM6-S6	3/8 Male NPT	3/8 SWAGELOK	2.42										1.29	1.79						
-1RM6-S8	3/8 Male NPT	1/2 SWAGELOK	2.53										1.40	1.90	.56					
-1RS10MM	10mm SWAGELOK		2.60										1.30	1.30	1.30	1.80	.50			
-1RS6	3/8 SWAGELOK		2.58	1.29	1.29	1.29	1.79						.55							
-1RS12MM	12mm SWAGELOK		2.80	1.40	1.40	1.40	1.90													
-1RS8	1/2 SWAGELOK																			
-18RF6	0.375	9.5	1.80	3/8 Female NPT		3.00	1.50	1.50	1.50	2.25	.75	.75		3.00	1.03	3.91				
-18RF6RT®				3/8 ISO Female Tapered																
-18RF8				1/2 Female NPT																
-18RF8RT®				1/2 ISO Female Tapered																
-18RM8				1/2 Male NPT																
-18RM8-F8				1/2 Male NPT	1/2 Female NPT															
-18RS8				1/2 SWAGELOK									3.80				1.90	1.90	1.90	2.65
-18RS12				3/4 SWAGELOK																

* Valves with RT ends conform to ISO 7/1. The following are various descriptions of the 7/1 thread: DIN-2999, BS 21, and JIS B0203. Consult your Authorized SWAGELOK Sales & Service Representative for further information.

Dimensions shown with SWAGELOK nuts finger-tight, where applicable. All dimensions are for reference only, subject to change.

ORDERING INFORMATION

Materials: Use B for brass, SS for 316 stainless steel, S for carbon steel, or M for alloy 400 as a prefix to the Basic Ordering Number. Example: S-1RF4

Stems: Basic Ordering Numbers specify Regulating stems (R). For a Vee stem, replace the R with V; for a Kel-F stem, replace the R with K. Example: SS-1VS4

Patterns: To order angle pattern valves, use -A as a suffix to the Ordering Number. Example: SS-1RF2-A. Some of the above valves are available in a cross pattern. Cross pattern valves offer uninterrupted flow between side ports at all times; on-off or metered flow through bottom port. Contact your Authorized SWAGELOK Sales & Service Representative for more information.

SOUR GAS SERVICE

Materials for wetted valve components are selected in accordance with N.A.C.E. standard MR0175-94 for sulfide stress cracking resistant materials. Stem and lower gland are alloy 400 or alloy R-405. To order, use -SG as a suffix to the valve Ordering Number. Example: SS-ORF2-SG

For information on the use of stainless steel instrument tube fittings in sour gas service, please refer to the N.A.C.E. MR0175-94 specification.

CAUTION:

Do not mix or interchange parts with those of other manufacturers

OPTIONS/ACCESSORIES

STEM PACKING SEALS

Factory-Assembled in Valve

Valves are standard with a two-piece chevron style PFA packing. Optional packing materials are described below.

UHMWPE (Ultra-high Molecular Weight Polyethylene) is intended for service where fluorocarbons are not acceptable. Maximum temperature rating is 250°F (121°C). To order valves with factory-assembled UHMWPE seals, use -P as a suffix to the valve Ordering Number. Example: SS-1RF4-P

PEEK (Polyetheretherketone) is a two-piece chevron packing which can extend the valve's temperature rating.

316 stainless steel: -65°F to 600°F @ 3130 psig (-54°C to 315°C @ 215 bar)

Alloy 400: -65°F to 500°F @ 2375 psig (-54°C to 260°C @ 163 bar)

Carbon steel and brass valve ratings do not change.

To order valves with factory-assembled PEEK seals, use -PK as a suffix to the valve Ordering Number. Example: SS-1RS4-PK

Stem Packing Kits

PFA, UHMWPE and PEEK packing kits are available. Kits contain stem packings, springs, lubrication, and instructions.

VALVE SERIES	ORIFICE SIZE	PACKING KIT ORDERING NUMBERS		
		PFA	UHMWPE	PEEK
"O"	0.080"	PFA-91K-O	PE-91K-O	PK-91K-O
"1"	0.172"	PFA-91K-14	PE-91K-14	PK-91K-14
"1"	0.250"	PFA-91K-16	PE-91K-16	PK-91K-16
"18"	0.375"	PFA-91K-18	PE-91K-18	PK-91K-18
Lubrication:		Tungsten disulfide and fluorocarbon base	Molybdenum disulfide and hydrocarbon base	Molybdenum disulfide, Tungsten disulfide, and fluorocarbon base

HANDLES

Factory-Assembled to Valve

The "O" and "1" Series Valves are standard with black phenolic knob handles. To order valves with *colored* handles factory-assembled, use the desired color designator in the chart below as a suffix to the valve Ordering Number. Example: SS-1RF4-GR. To order valves with *black aluminum bar* handles factory-assembled, use -BKB as a suffix to the valve Ordering Number. Example: SS-ORS2-BKB

VALVE SERIES	COLOR DESIGNATORS				
	BLUE	GREEN	ORANGE	RED	YELLOW
"O" & "1"	-BL	-GR	-OG	-RD	-YW

The "18" Series Valve is standard with a black aluminum bar handle. To order valves with *black phenolic knob* handles, use -BKP as a suffix to the valve Ordering Number. Example: SS-18RF8-BKP. To order valves with *316 stainless steel bar* handles, for all series, use -SH as a suffix to the valve Ordering Number. Example: M-1RS4-SH

Handles as Spare Parts

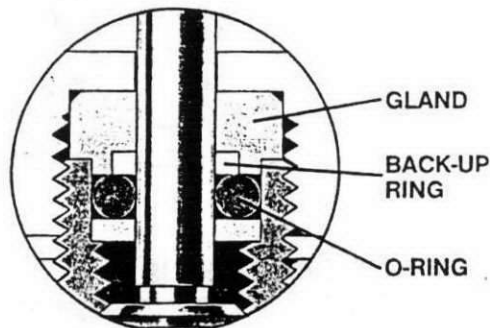
To order handles as spare parts, reference chart below.

VALVE SERIES	ORIFICE SIZE	ORDERING NUMBERS		
		BLACK PHENOLIC KNOB	BLACK ALUMINUM BAR	316 STAINLESS STEEL BAR
"O"	0.080"	PH-5K-OK-BK ^②	A-5K-14B-BK	SS-5K-14B
"1"	0.172"	PH-5K-14K-BK ^②		
"1"	0.250"	PH-5K-4K-BK ^②	A-5K-6NB-BK	SS-5K-6NB
"18"	0.375"	PH-5K-7K-BK	A-5K-18B-BK	SS-5K-7B

② To order *colored* phenolic knob handles, replace -BK in the Ordering Number with one of these color designators: -BL (Blue), -GR (Green), -OG (Orange), -RD (Red), -YW (Yellow). Example: PH-5K-14K-BL

O-RING STEM SEALS

O-Ring Stem Seals are available for special applications, factory assembled in the valve or as a maintenance kit. Conversion requires a special gland, back-up ring, and O-Ring.



Factory-Assembled in Valve

To order valves with factory-assembled O-Ring Stem Seals, use the desired O-Ring material designator listed below as a suffix to the valve Ordering Number. Example: SS-1RM4-BC

Viton A: -V

Buna N: -B

Silicone: -SI

Buna C: -BC

Ethylene Propylene: -E

Kalrez: -KZ

O-Ring Stem Seal Kits

These kits are to *maintain* valves having O-Ring seals. Each kit contains O-Ring(s), back-up ring, and lubrication. Kits are standard with a TFE back-up ring, except the Ethylene Propylene kit, which has a polyethylene back-up ring.

To order, combine Material, Kit, and Valve Designators from chart below. Example: VA70-9K-16

O-RING MATERIAL	MATERIAL DESIGNATOR	TEMPERATURE RATING	KIT DESIGNATOR	VALVE DESIGNATOR
Viton A	VA70	-20°F to 450°F (-29°C to 232°C)	-9K-	O (0.080") 14 (0.172") 16 (0.250") 18 (0.375")
Kalrez	KZ70			
Buna N	BN70	-20°F to 250°F (-29°C to 121°C)		
Silicone	SI70			
Ethylene Propylene	EP70			
Buna C	BC70	-65°F to 250°F (-54°C to 121°C)		

SAFE COMPONENT SELECTION

When selecting a component, the total system design must be considered to ensure safe, trouble-free performance. Component function, materials compatibility, adequate ratings, proper installation, operation and maintenance are the responsibility of the system designer and user.

Kel-F - TM 3M Company/ Viton, Kalrez - TM DuPont/ 17-7PH - TM Armco Steel

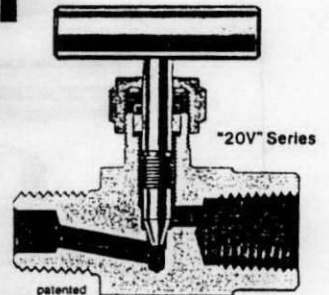


Your Local Authorized SWAGELOK Sales & Service Representative:

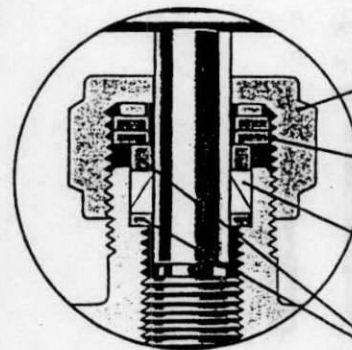
Printed in U.S.A.
M.
August 1993

WHITEY

Integral Bonnet Needle Valves

"20" & "26" Series

FEATURES/BENEFITS



LIVE LOADED PACKING SYSTEM

- Packing nut - makes external adjustments fast and easy.
- Packing springs - live-load packing to reduce fugitive emissions.
- 2-piece chevron packing - offers improved sealing over conventional packing designs.
- Fully supported packing - reduces need for adjustment.

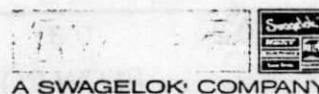
- Pressures to 6000 psig (413 bar)
- Temperatures to 450°F (232°C) with standard PFA packing; up to 600°F (315°C) with optional PEEK packing
- Soft seat or metal-to-metal shut-off
- Rugged 316 stainless steel construction
- Straight and angle pattern body styles
- Variety of end connections include gageable SWAGELOK® Tube Fittings, male NPT, female NPT, and ISO, BSP, DIN and JIS tapered pipe ends
- Orifice sizes of 0.080" ("20K" Series), 0.125" ("20V" Series) and 0.250" ("26" Series)
- Flow coefficients (C_v) from 0.09 to 0.73
- Every valve is factory tested

WORKING PRESSURE

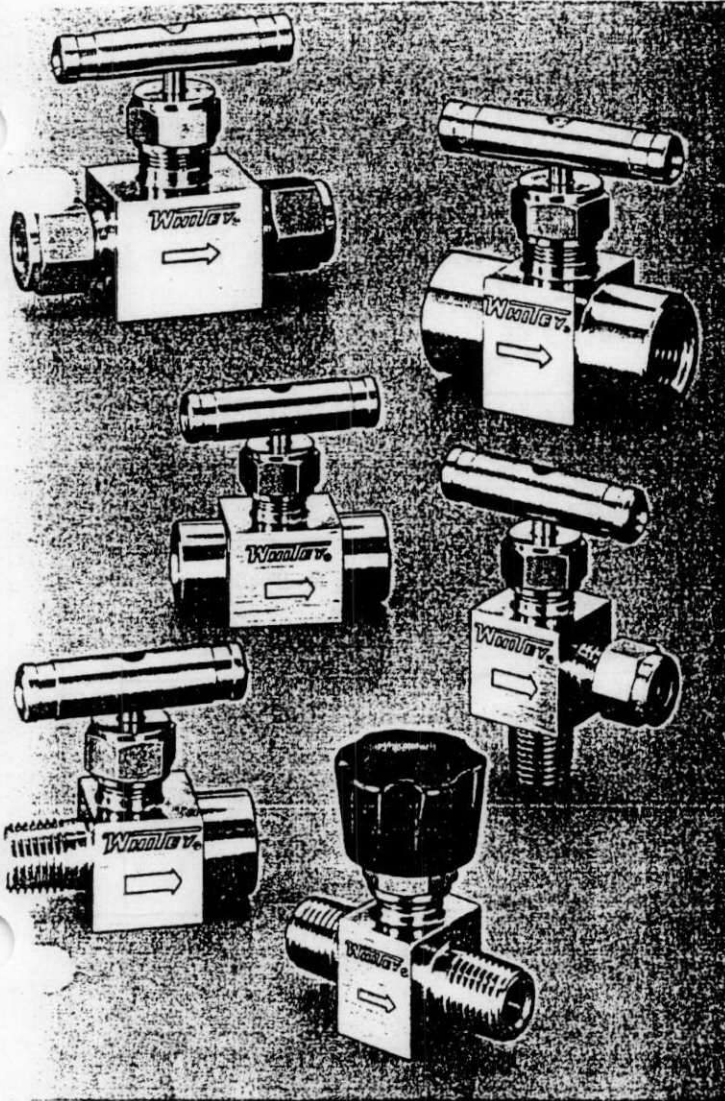
ANSI GROUP		2.2	
MATERIAL NAME		316SS	
CLASS (ANSI)		2500	
TEMPERATURE @ PRESSURE		psig	bar
-65°F (-54°C) to	100°F (38°C)	6000	413
	200°F (93°C)	5160	355
	300°F (148°C)	4660	321
	350°F (176°C)	4470	308
	400°F (204°C)	4280	294
	450°F (232°C)	4130	284

To determine kPa, multiply psig by 6.89.

For complete information on ANSI Class ratings, refer to Technical Bulletin No. 4.



WHITEY Co.
318 Bishop Road
Highland Heights, Ohio 44143, U.S.A.



TECHNICAL DATA

These ratings are for a standard valve having PFA packing. Optional seal materials will affect the temperature rating. See *Stem Packing Seals* on Page 4.

VALVE MATERIAL	STEM TYPE	TEMPERATURE RATING	PRESSURE RATING @ 100°F (38°C)
316 Stainless Steel	Vee	-65°F to 450°F (-54°C to 232°C)	6000 psig (413 bar)
	Kel-F	-65°F to 200°F (-54°C to 93°C)	

TESTING

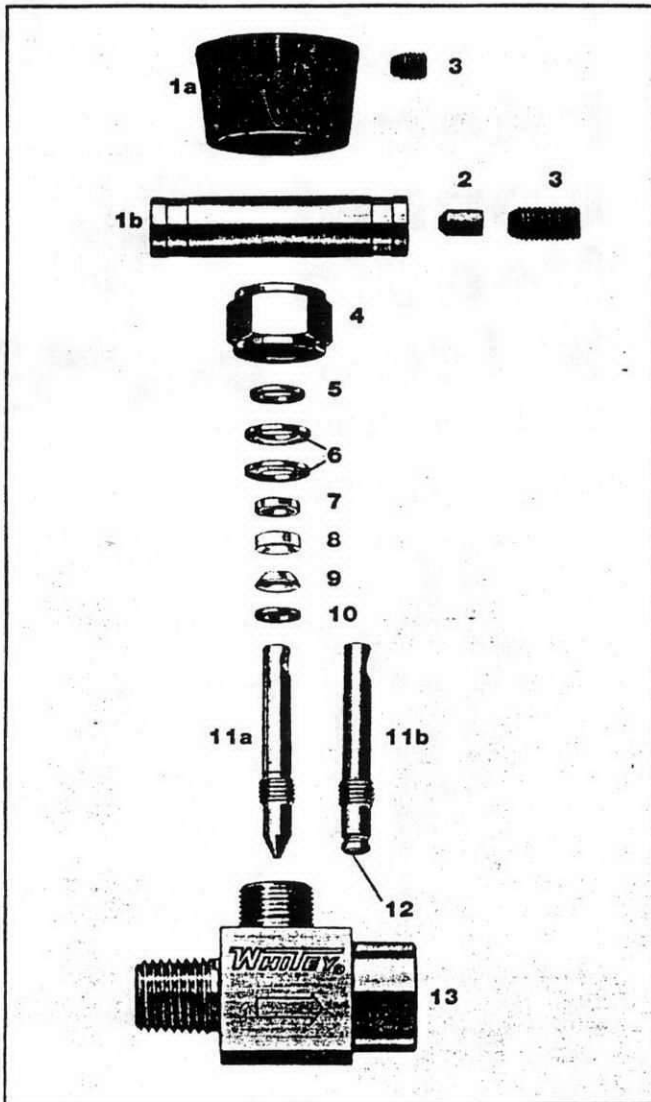
Standard Production Test—Every valve is factory tested with nitrogen @ 1000 psig (68 bar) for leakage at the seat to a maximum allowable leak rate of 0.1 scc/min. The packings are tested for no detectable leakage.

Optional Hydrostatic Test—This hydrostatic shell test is performed with deionized water at 1½ times the working pressure.

Other optional tests are available. Consult your Authorized SWAGELOK Sales & Service Representative.

MATERIALS OF CONSTRUCTION

A knob handle is standard on the "20K" Series Valve. A bar handle is standard on the "20V" and "26" Series Valves. Optional handles are available. Refer to Page 4 for selection and ordering information.



	GRADE/ASTM SPECIFICATION
1a Knob Handle	Aluminum
1b Bar Handle	316SS/A276
2 Handle Pin	17-4PH/A564
3 Set Screw	
4 Packing Nut	316SS/A276
5 Gland ¹	Stainless Steel
6 Packing Springs ²	17-7PH/A693
7 Packing Gland	316SS/A276, A167
8 Upper Packing	PFA
9 Lower Packing	
10 Lower Gland	316SS/A167
11a Stem (Vee)	316SS/A276
11b Stem (Soft Seat)	
12 Stem Tip (Soft Seat)	Kel-F(CTFE)
13 Body	316SS/A479

Wetted parts numbered in red.

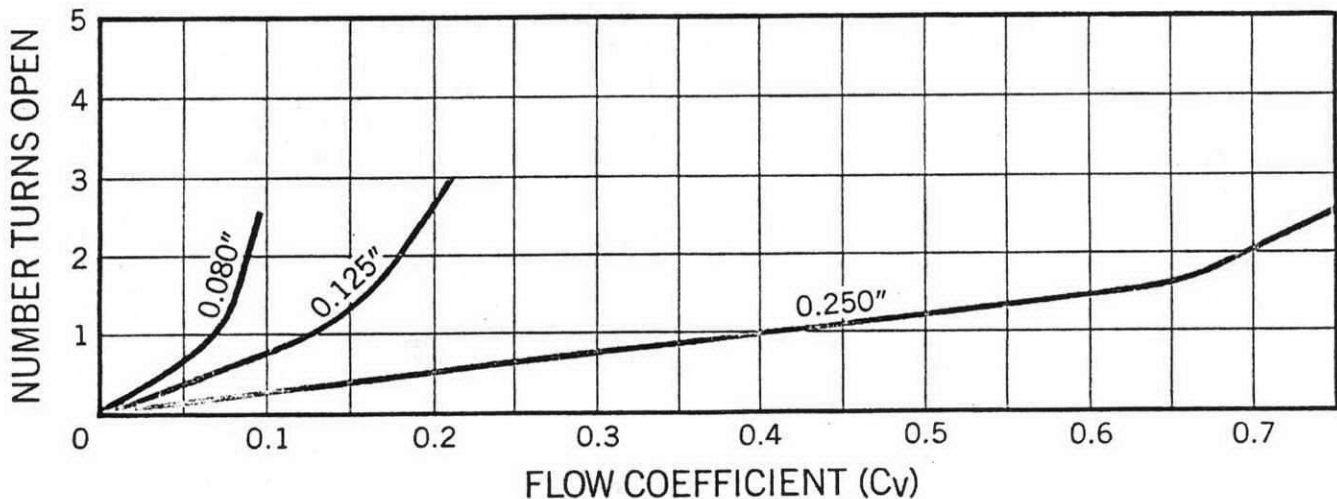
Lubrication: Tungsten disulfide and fluorocarbon based.

¹ Utilized in "20" Series Valves.

² Number of springs will vary depending on valve size.

FLOW COEFFICIENT (C_v) @ TURNS OPEN

■ Kel-F Stem ■ Vee Stem ■ Vee or Kel-F Stem



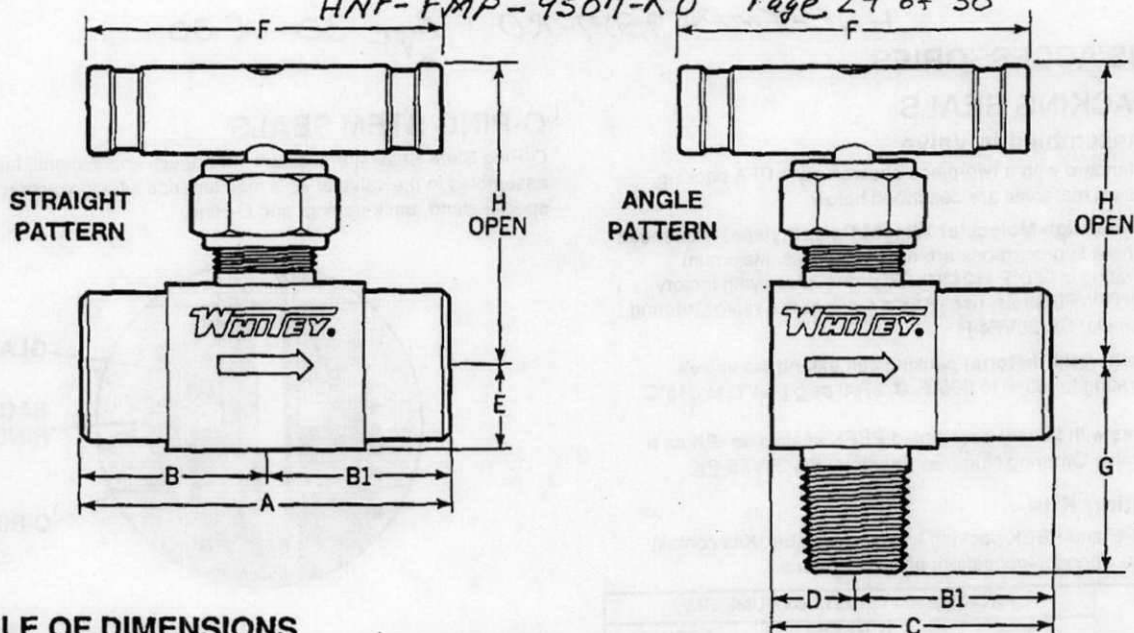


TABLE OF DIMENSIONS

ORDERING NUMBER	ORIFICE		C _v	CONNECTION SIZE		DIMENSIONS (inches)									
	in.	mm		INLET	OUTLET	A	B	B1	C	D	E	F	G	H OPEN	
SS-20KF4	0.080	2.0	0.09	1/4 Female NPT		1.88	.94	.94	—	—	.42	1.13 ^Q	—	1.66	
SS-20KM4				1/4 Male NPT		1.94	.97	.97	—	—			—		
SS-20KM4-F4				1/4 Male NPT	1/4 Female NPT	1.91		.94	—	—			—		
SS-20KM4-F4-A				1/4 Male NPT	1/4 Female NPT	—		—	1.00	1.44			.44		—
SS-20VF4	0.125	3.2	0.21	1/4 Female NPT		1.88	.94	.94	—	—	.42	1.75	—	1.64	
SS-20VF4-A				1/4 Female NPT		—	—	1.00	1.44	.44	—		1.00		
SS-20VF4RT ^Q				1/4 ISO Female Tapered		1.88	.94	.94	—	—	.42		—		
SS-20VM4				1/4 Male NPT		1.94	.97	.97	—	—			—		
SS-20VM4-F4				1/4 Male NPT	1/4 Female NPT	1.91		.94	—	—			—		
SS-20VM4-F4-A				1/4 Male NPT	1/4 Female NPT	—	—	1.00	1.44	.44	—		1.03		
SS-20VM4-S4-A				1/4 Male NPT	1/4 SWAGELOK	—	—	1.13	1.57		—		—		
SS-20VS4				1/4 SWAGELOK		2.46	1.23	1.23	—	—	.42		—		
SS-20VS4-A	1/4 SWAGELOK		—	—	1.13	1.57	.44	—	1.17						
SS-26VF6	0.250	6.4	0.73	3/8 Female NPT		2.50	1.25	1.25	—	—	.66	2.50	—	2.31	
SS-26VF8				1/2 Female NPT					—	—			—		
SS-26VF8-A				1/2 Female NPT		—	—	1.40	2.06	.66	—		1.41		
SS-26VF8RT ^Q				1/2 ISO Female Tapered		2.50	1.25	1.25	—	—	.66		—		
SS-26VM6-F6				3/8 Male NPT	3/8 Female NPT				—	—			—		—
SS-26VM6-F6-A				3/8 Male NPT	3/8 Female NPT	—	—	1.40	2.06	.66	—		1.22		
SS-26VM8-F8				1/2 Male NPT	1/2 Female NPT	2.55	1.30	1.25	—	—	.66		—		
SS-26VM8-F8-A				1/2 Male NPT	1/2 Female NPT	—	—	1.40	2.06	.66	—		1.41		
SS-26VM12-F8				3/4 Male NPT	1/2 Female NPT	2.50	1.25	1.25	—	—	.66		—		
SS-26VS6				3/8 SWAGELOK		3.08	1.54	1.54	—	—			—		
SS-26VS8	1/2 SWAGELOK		3.30	1.65	1.65	—	—	—	—						

^a Dimension for aluminum knob handle.

^a Valves with RT ends conform to ISO 7/1. The following are various descriptions of the 7/1 thread: DIN-2999, BS 21, and JIS B0203. Consult your Authorized SWAGELOK Sales & Service Representative for further information.

Ordering Information

Stems: "20K" Series Valves are available with Kel-F stem tips only. "20V" Series Valves are available with Vee stem tips only. Ordering Numbers for "26" Series Valves specify a Vee stem (V). For a Kel-F stem tip, replace the V with K. Example: SS-26KF8

CAUTION:

Do not mix or interchange parts with those of other manufacturers.

Dimensions shown with SWAGELOK nuts finger-tight, where applicable. All dimensions are for reference only, subject to change.

Sour Gas Service

Materials for wetted valve components are selected in accordance with N.A.C.E. standard MR0175-94 for sulfide stress cracking resistant materials. Stems and lower gland are alloy 400 or alloy R-405. To order, use -SG as a suffix to the valve Ordering Number. Example: SS-20KF4-SG

For information on the use of stainless steel instrument tube fittings in sour gas service, please refer to the N.A.C.E. MR0175-94 specification.

OPTIONS/ACCESSORIES

STEM PACKING SEALS

Factory-Assembled in Valve

Valves are standard with a two-piece chevron style PFA packing. Optional packing materials are described below.

UHMWPE (Ultra-High Molecular Weight Polyethylene) is intended for service where fluorocarbons are not acceptable. Maximum temperature rating is 250°F (121°C). To order valves with factory-assembled UHMWPE seals, use -P as a suffix to the valve Ordering Number. Example: SS-20VF4-P

PEEK (Polyetheretherketone) packing can extend the valve's temperature rating to -65°F to 600°F @ 3760 psig (-54°C to 315°C @ 259 bar).

To order valves with factory-assembled PEEK seals, use -PK as a suffix to the valve Ordering Number. Example: SS-26VF8-PK

Stem Packing Kits

PFA, UHMWPE and PEEK packing kits are available. Kits contain stem packings, springs, lubrication, and instructions.

VALVE SERIES	PACKING KIT ORDERING NUMBERS		
	PFA	UHMWPE	PEEK
"20V" & "20K"	PFA-91K-O	PE-91K-O	PK-91K-O
"26V" & "26K"	PFA-91K-16	PE-91K-16	PK-91K-16
Lubrication:	Tungsten disulfide and fluorocarbon base	Molybdenum disulfide and hydrocarbon base	Molybdenum disulfide, Tungsten disulfide, and fluorocarbon base

HANDLES

Factory-Assembled to Valve

The "20K" Series Valve is standard with a black aluminum knob handle. The "20V" and "26" Series Valves are standard with a 316 stainless steel bar handle. All three series can be ordered with factory-assembled *colored phenolic knob handles* by using the desired color designator listed below to the valve Ordering Number.

Example: SS-20VF4-GRP

-BKP (Black) -BLP (Blue) -GRP (Green)
-OGP (Orange) -RDP (Red) -YWP (Yellow)

To order a "20K" Series Valve with a 316 stainless steel bar handle, use -SH as a suffix to the valve Ordering Number.

Example: SS-20KF4-SH

Handles as Spare Parts

To order handles as spare parts, reference chart below.

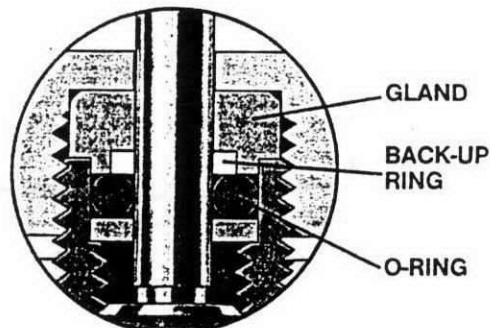
VALVE SERIES	ORDERING NUMBERS	
	BLACK PHENOLIC KNOB ²	316 STAINLESS STEEL BAR
"20V" & "20K"	PH-5K-14K-BK	SS-5K-14B
"26V" & "26K"	PH-5K-4K-BK	SS-5K-6NB

² To order *colored phenolic knob handles*, replace -BK in the Ordering Number with one of these color designators: -BL (Blue), -GR (Green), -OG (Orange), -RD (Red), -YW (Yellow). Example: PH-5K-4K-BL

To order *black aluminum knob handles* for the "20K" Series Valve, use Ordering Number A-SS-20K-BK.

O-RING STEM SEALS

O-Ring Stem Seals are available for special applications, factory-assembled in the valve or as a maintenance kit. Conversion requires a special gland, back-up ring, and O-Ring.



Factory-Assembled in Valve

To order valves with factory-assembled O-Ring Stem Seals, use the desired O-Ring material designator listed below as a suffix to the valve Ordering Number. Example: SS-20VM4-V

Viton A: -V Buna N: -B Silicone: -SI
Buna C: -BC Ethylene Propylene: -E Kalrez: -KZ

O-Ring Stem Seal Kits

These kits are to maintain valves having O-Ring seals. Each kit contains O-Ring(s), back-up ring, and lubrication. Kits are standard with a TFE back-up ring, except the Ethylene Propylene kit, which has a polyethylene back-up ring.

To order, combine Material, Kit, and Valve Designators from chart below. Example: VA70-9K-O

O-RING MATERIAL	MATERIAL DESIGNATOR	TEMPERATURE RATING	KIT DESIGNATOR	VALVE DESIGNATOR
Viton A	VA70	-20°F to 450°F (-29°C to 232°C)	-9K-	O (0.080" & 0.125") 16 (0.250")
Kalrez	KZ70			
Buna N	BN70			
Silicone	SI70	-20°F to 250°F (-29°C to 121°C)		
Ethylene Propylene	EP70			
Buna C	BC70	-65°F to 250°F (-54°C to 121°C)		

SAFE COMPONENT SELECTION

When selecting a component, the total system design must be considered to ensure safe, trouble-free performance. Component function, materials compatibility, adequate ratings, proper installation, operation and maintenance are the responsibility of the system designer and user.

Kel-F - TM 3M Company/Viton, Kalrez - TM DuPont/17-4PH, 17-7PH - TM Armco Steel

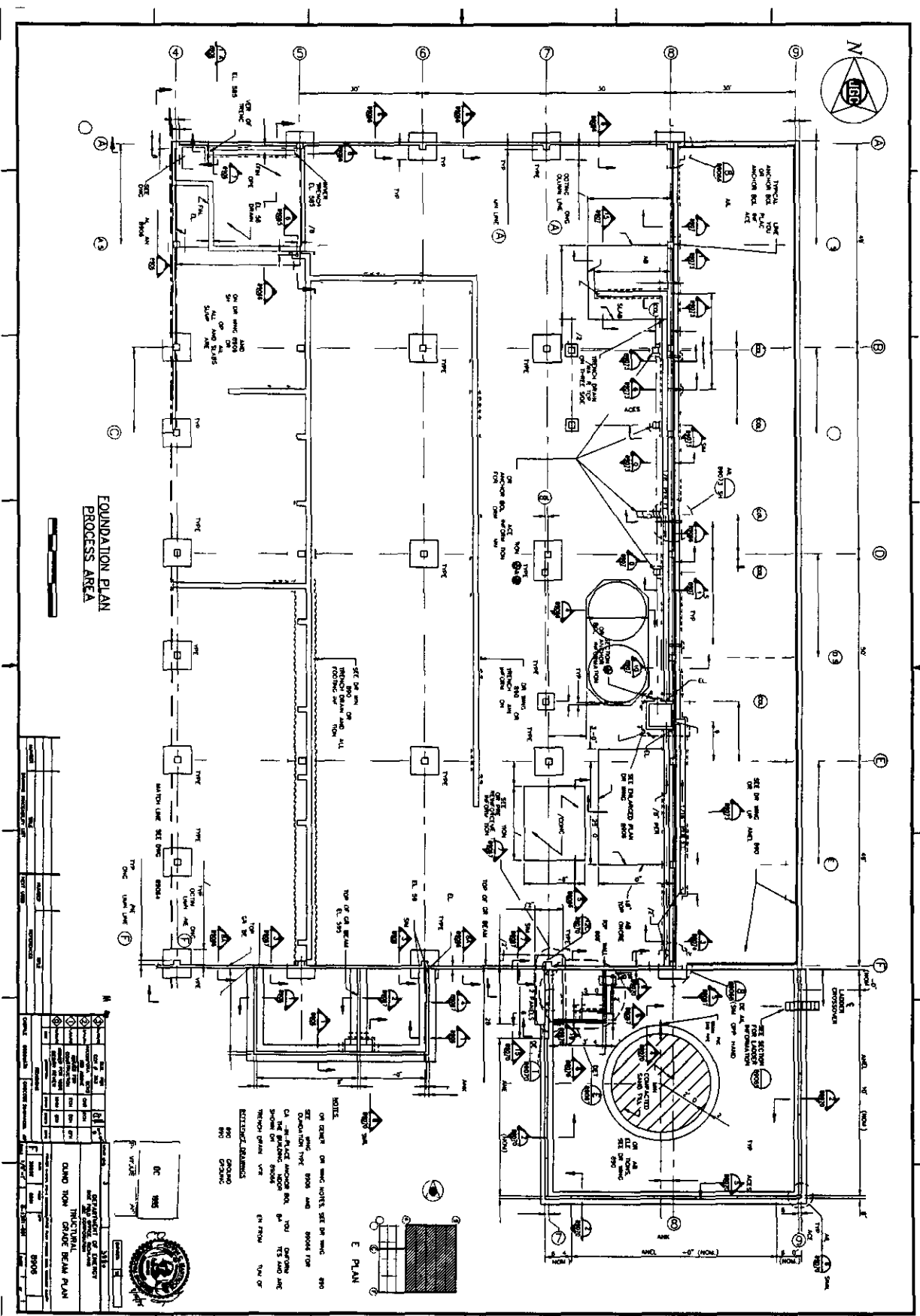


Your Local Authorized SWAGELOK Sales & Service Representative:

Printed in U.S.A.
SP (E)
July 1999

Part III Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Appendix 4A Table 4A 2



FOUNDATION PLAN
PROCESS AREA

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
1	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
2	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
3	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
4	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
5	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
6	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
7	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
8	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
9	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
10	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
1	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
2	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
3	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
4	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
5	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
6	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
7	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
8	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
9	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN
10	FOUNDATION PLAN	10/1/78	J. L. BROWN	J. L. BROWN	J. L. BROWN

NOTES:
 1. SEE DETAIL FOR WALL SECTION.
 2. SEE DETAIL FOR FLOOR SECTION.
 3. SEE DETAIL FOR ROOF SECTION.
 4. SEE DETAIL FOR FOUNDATION SECTION.
 5. SEE DETAIL FOR TRENCH SECTION.
 6. SEE DETAIL FOR ELEVATION SECTION.
 7. SEE DETAIL FOR SECTION SECTION.
 8. SEE DETAIL FOR CROSSOVER SECTION.
 9. SEE DETAIL FOR TRENCH SECTION.
 10. SEE DETAIL FOR ELEVATION SECTION.

E PLAN

ENGINEERING CHANGE NOTICE

Page 1 of 3

1 ECN
647892
Proj
ECN

2 ECN Category (mark one) Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersede <input type="checkbox"/> Cancel/Void <input type="checkbox"/>		3 Originator's Name Organization MSIN and Telephone No AF Crane, 32230, S6-72, 372-3152		4 USQ Required? [] Yes [X] No		5 Date 09/21/98	
		6 Project Title/No /Work Order No Access Stairs/A4055		7 Bldg /Sys /Fac No 2025E		8 Approval Designator N/A	
		9 Document Numbers Changed by this ECN (includes sheet no and rev) See Blk 13a		10 Related ECN No(s) N/A		11 Related PO No N/A	
12a Modification Work [X] Yes (fill out Blk 12b) [] No (NA Blks 12b 12c 12d)		12b Work Package No EL-98-00588/M CAC 9/23/98		12c Modification Work Complete Design Authority/Cog Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECN only) N/A Design Authority/Cog Engineer Signature & Date	
13a Description of Change H-2-89033, Sh 1, Rev 2 H-2-89036, Sh 1, Rev 2 H-2-89039, Sh 1, Rev 4 H-2-89040, Sh 1, Rev 2 H-2-89044, Sh 1, Rev 4 See Continuation Sheet				13b Design Baseline Document? [X] Yes [] No H-2-89063, Sh 1, Rev 3 H-2-89068, Sh 1, Rev 3 H-2-89069, Sh 1, Rev 3 H-2-89078, Sh 1, Rev 4			
14a Justification (mark one) Criteria Change [] Design Improvement [X] Environmental [] Facility Deactivation [] As Found [] Facilitate Const [] Const Error/Omission [] Design Error/Omission []							
14b Justification Details Installation of stairways is required to provide safe access when carrying equipment into the surge and verification containments Informal design review performed by RJ Huth							
15 Distribution (include name MSIN and no of copies) MW Bowman S6-72 (1) AF Crane S6-72 (1)* BS Darling T4-61 (1) DL Flyckt S6-71 (1) JE Geary S6-71 (1)				RJ Huth S6-72 (1) JM Isdell G3-17 (1)* NJ Sullivan S6-72 (1) AK Yoakum S6-71 (1) WCC Planning S6-71 (1)*			
*Advance Copy				RELEASE STAMP SEP 25 1998 DATE: HANFORD STA. RELEASE 30 25			

ENGINEERING CHANGE NOTICE

1 ECH (Use no from pg 1)
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16 Design Verification Required [X] Yes [] No	17 Cost Impact ENGINEERING Additional [] \$ Savings [] \$	CONSTRUCTION Additional [] \$ Savings [] \$	18 Schedule Impact (days) Improvement [] Delay []
19 Change Impact Review Indicate the related documents (other than the engineering documents identified on Slide 1) that will be affected by the change described in Block 15. Enter the affected document number in Block 20. SDD/DD [] Functional Design Criteria [] Operating Specification [] Criticality Specification [] Conceptual Design Report [] Equipment Spec. [] Const. Spec [] Procurement Spec. [] Vendor Information [] O&M Manual [] FSAR/SAR [] Safety Equipment List [] Radiation Work Permit [] Environmental Impact Statement [] Environmental Report [] Environmental Permit []			
20 Other Affected Documents (NOTE: Documents listed below will not be revised by this ECH.) Signatures below indicate that the signing organization has been notified of other affected documents listed below. Document Number/Revision N/A Document Number/Revision Document Number/Revision			

21 Approvals

	Signature	Date	Signature	Date
Design Authority AF Crane	Get Crane	9-21-98	Design Agent AF Crane	Get Crane
COG Eng			PE	
COG Mgr MJ Sullivan		9-22-98	QA	
			Safety	
			Design	
			Environ	
			Other	
Y				
Environ				
Other				
RJ Huth		9-22-98		
Informal Design Review				
DEPARTMENT OF ENERGY				
Signature or a Control Number that tracks the Approval Signature				
ADDITIONAL				

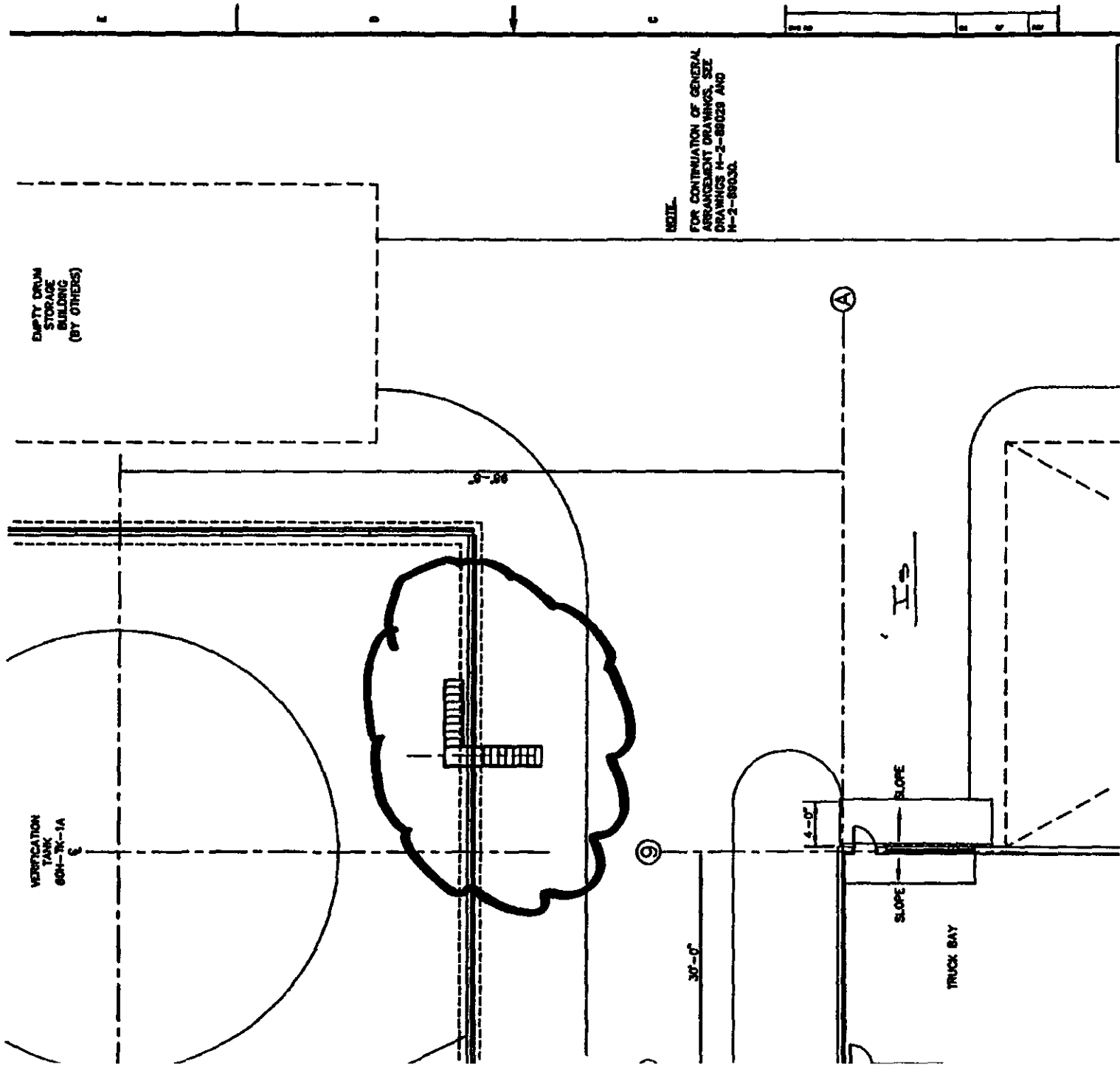
ENGINEERING CHANGE NOTICE CONTINUATION SHEET

Page 3 of 27

ECN 647892

Date 9/21/98

- H-2-89033, Sh 1, Zone D-3 Replace ladder with stairway
- H-2-89036, Sh 1, Zone E-4 Replace ladder with stairway
- H-2-89039, Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89040 Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89044, Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89063, Sh 1, Zone F-2 Replace ladder with stairway Delete 8'-9" dimension and ladder & crossover centerline callout Change Section 4, Dwg 89069 callout to read "See Section For Foundation Information"
- H-2-89068, Sh 1, Zone C-3 Replace ladder with stairway Delete 10'-0" & 3'-5 1/2 dimensions, landing and ladder & crossover centerline callout Change callout to read "See Section For Foundation Information" with reference to Dwg 89069, Section 4
- H-2-89069, Sh 1, Zone A-6 Add "minimum" to foundation width dimension (2'-0") callout Change foundation text to read "Ladder Or Stairway Concrete Foundation (Locate In Field)" Change ladder description text to read "Aluminum Pre-Engineered Ship Ladder With Platform & Return, O'Keefe's Model 522-10 Or Equal, Or Aluminum Pre-Engineered Stairway See VI Supp 50054 For Stairway Detail "
- H-2-89078, Sh 1, Zone A-7 Change detail title to "Ladder Or Stairway Step Off Pad"
Zone B-6 Change callout to "Ladder Or Stairway" from "Ladder"
Zone B-7 Add "minimum" to step off pad length dimension (38")
Zone B-8 Add "minimum" to step off pad width dimension (30")

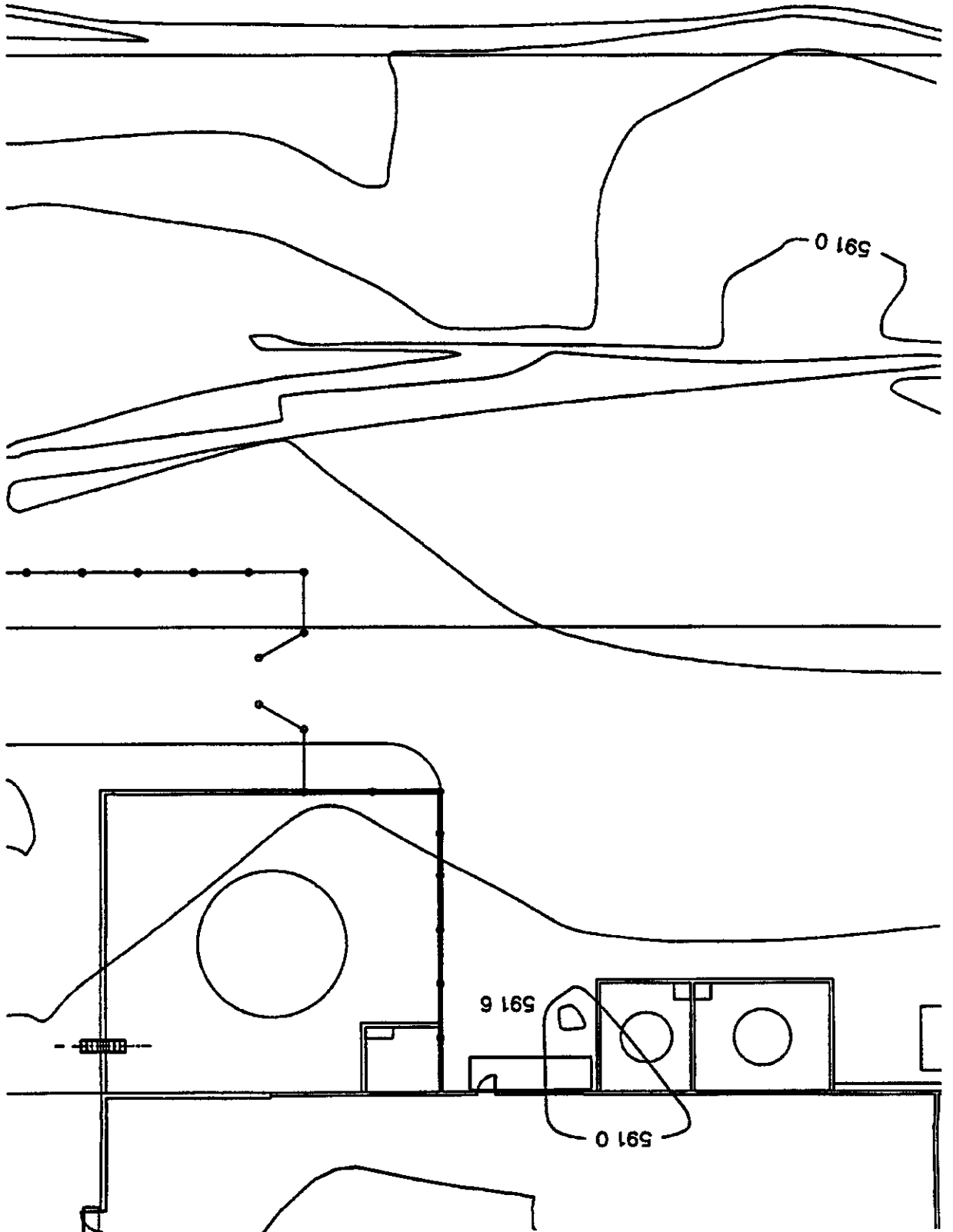


ECN 647892 P25 of 27
 W2 89033 SH 1

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DRAWING: 4-400, BUREAU OF APPLIED TECHNOLOGY		DRAWING: 4-400, BUREAU OF APPLIED TECHNOLOGY	
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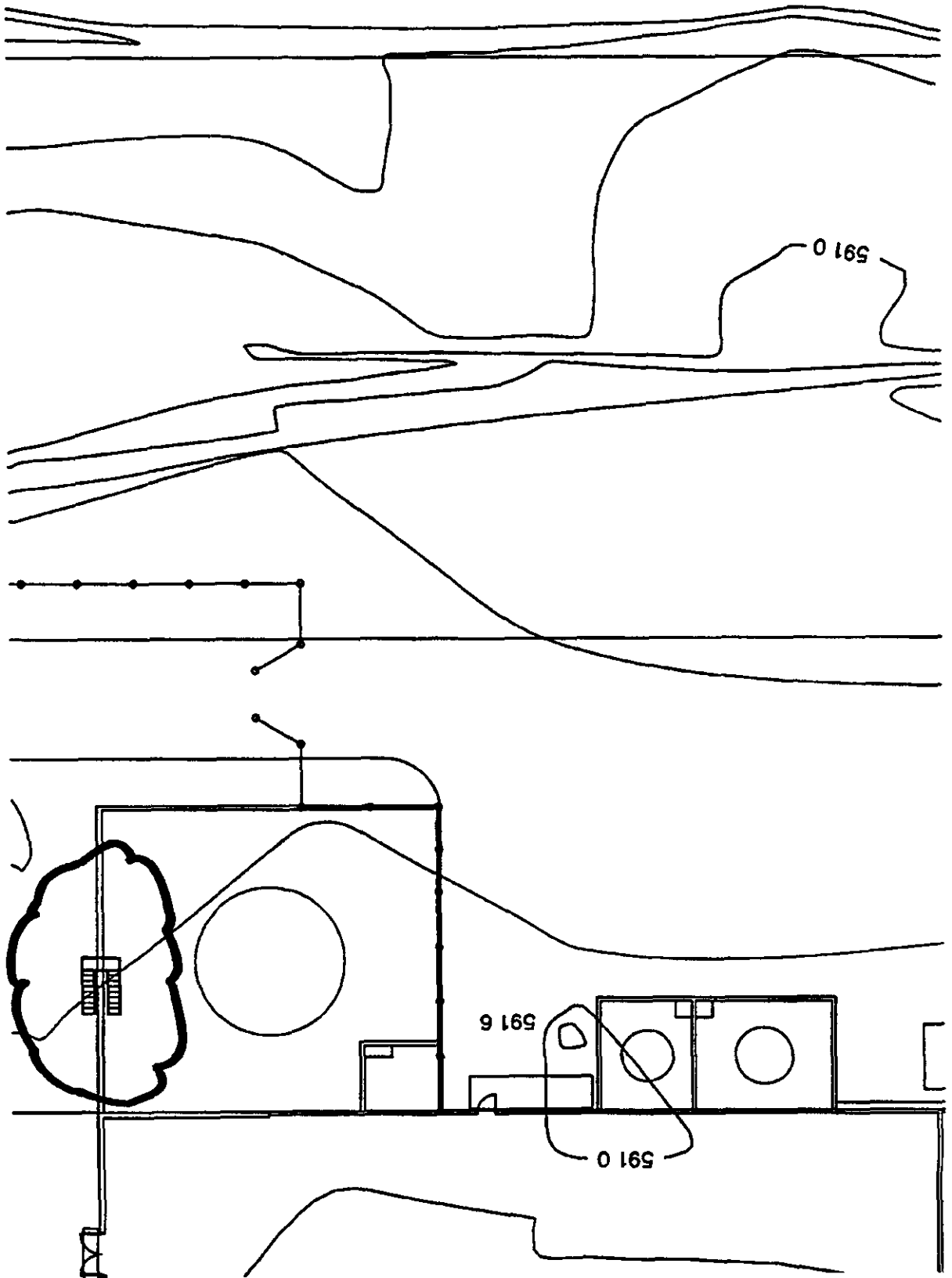
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H-2-89036 SH 1



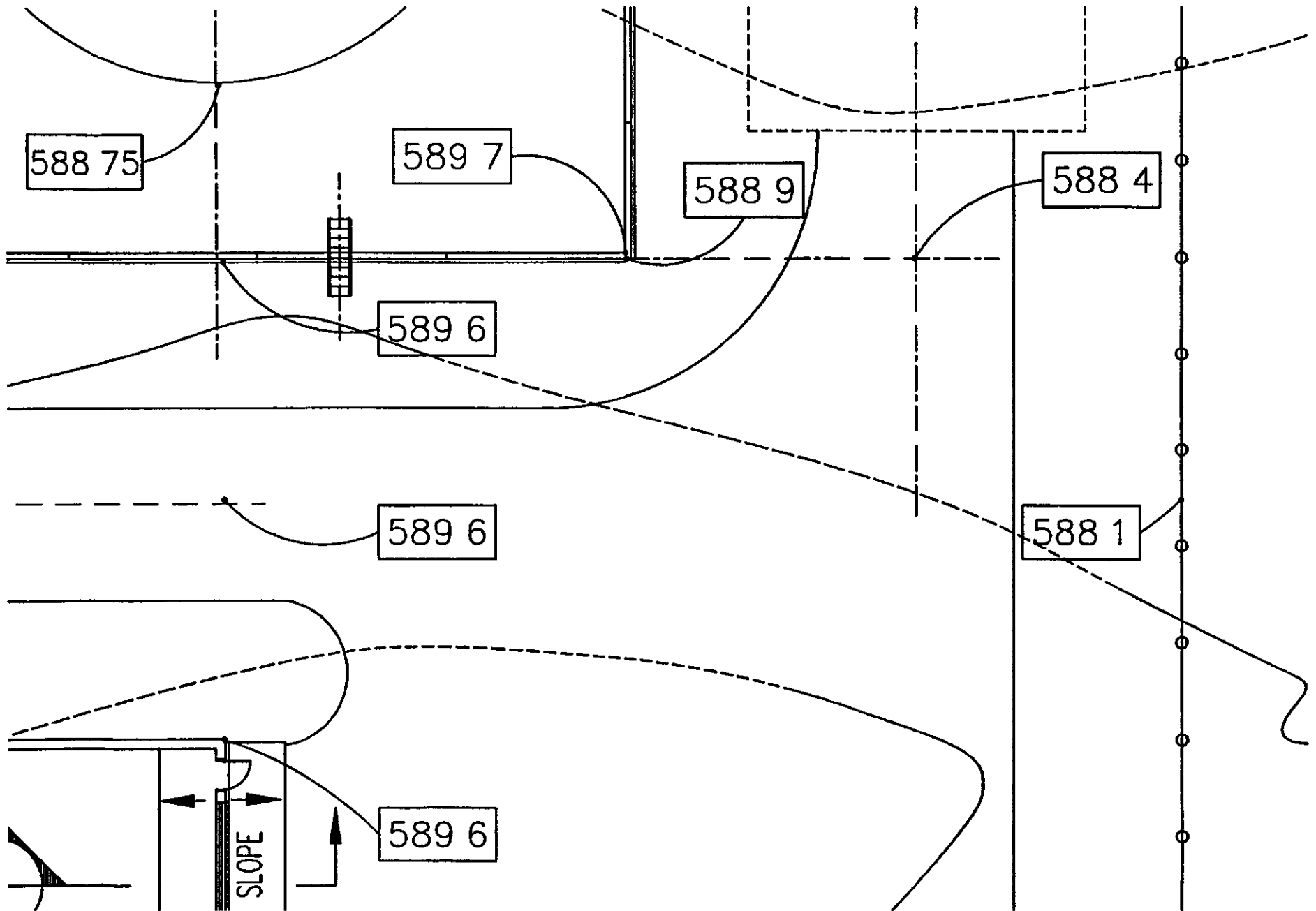
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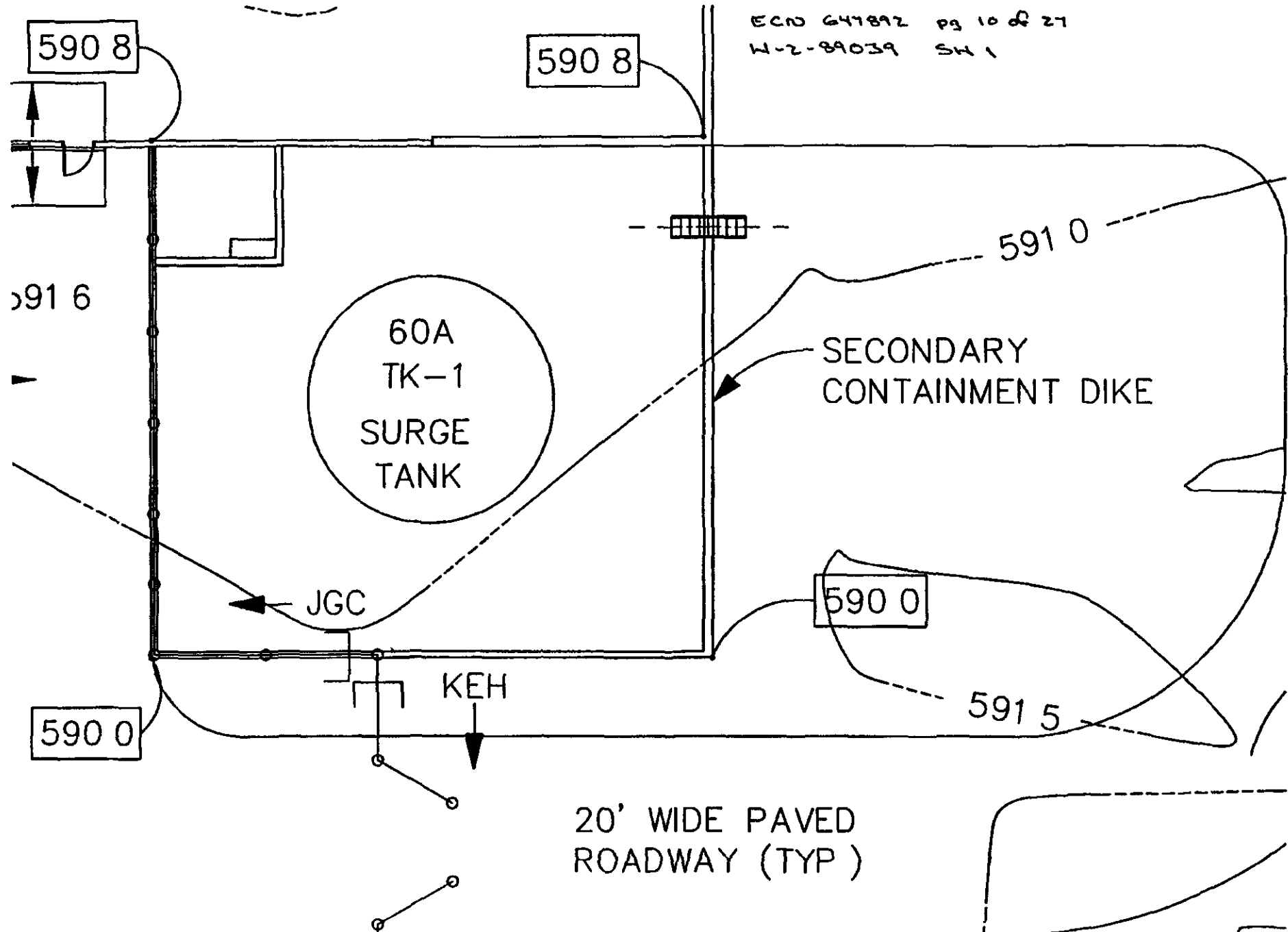


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H 2 89039 SW 1



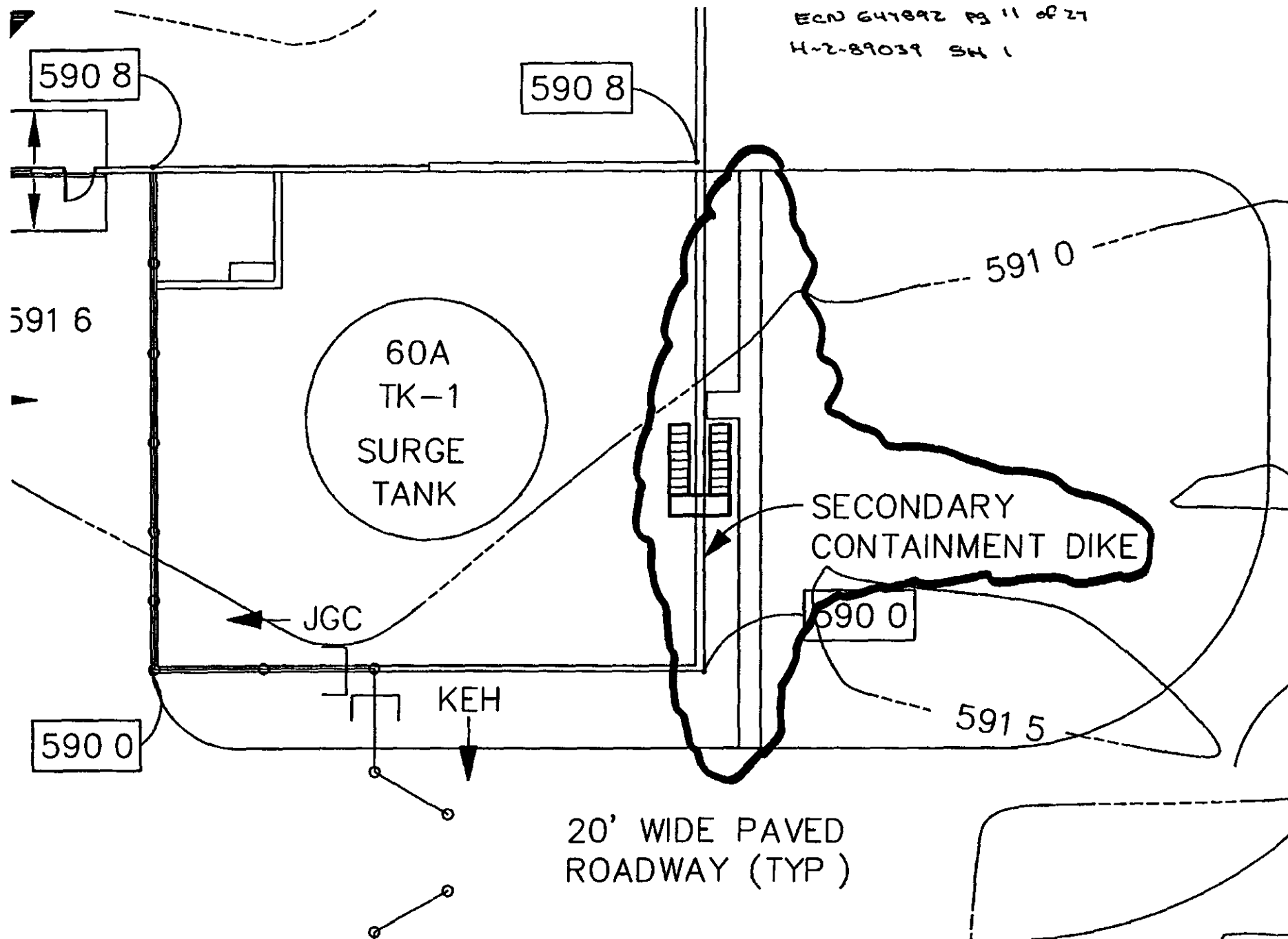
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W-2-89039 SW 1



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H-2-89039 SH 1

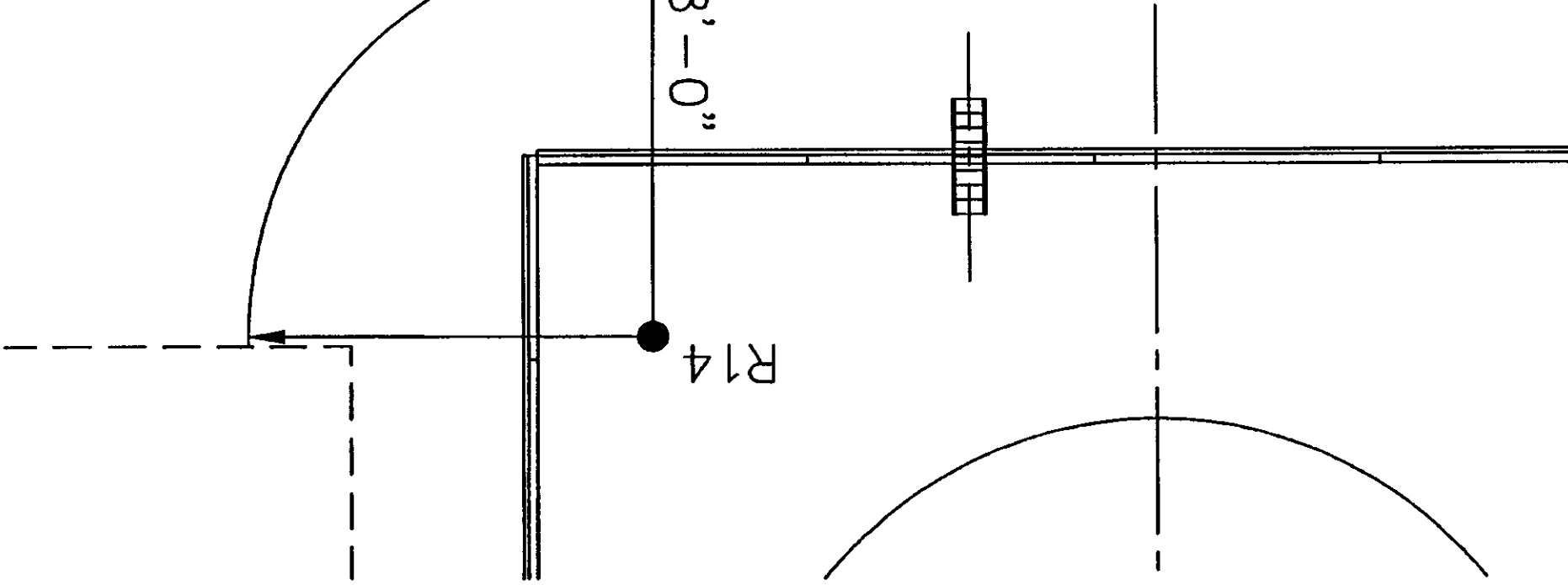
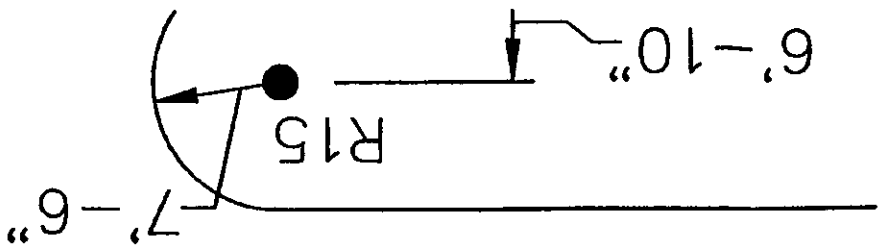


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M-2 89040 SH 1

WAS

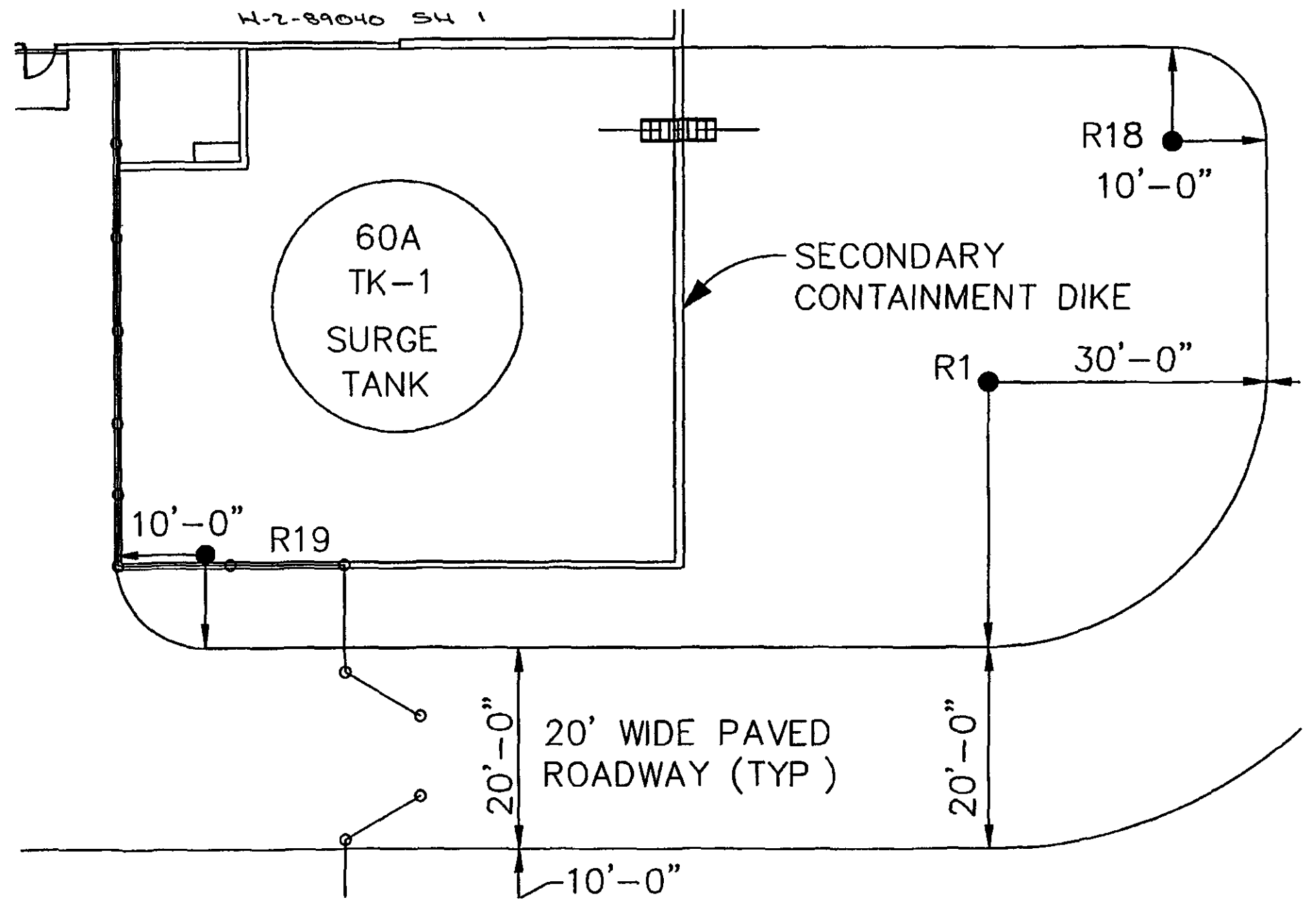
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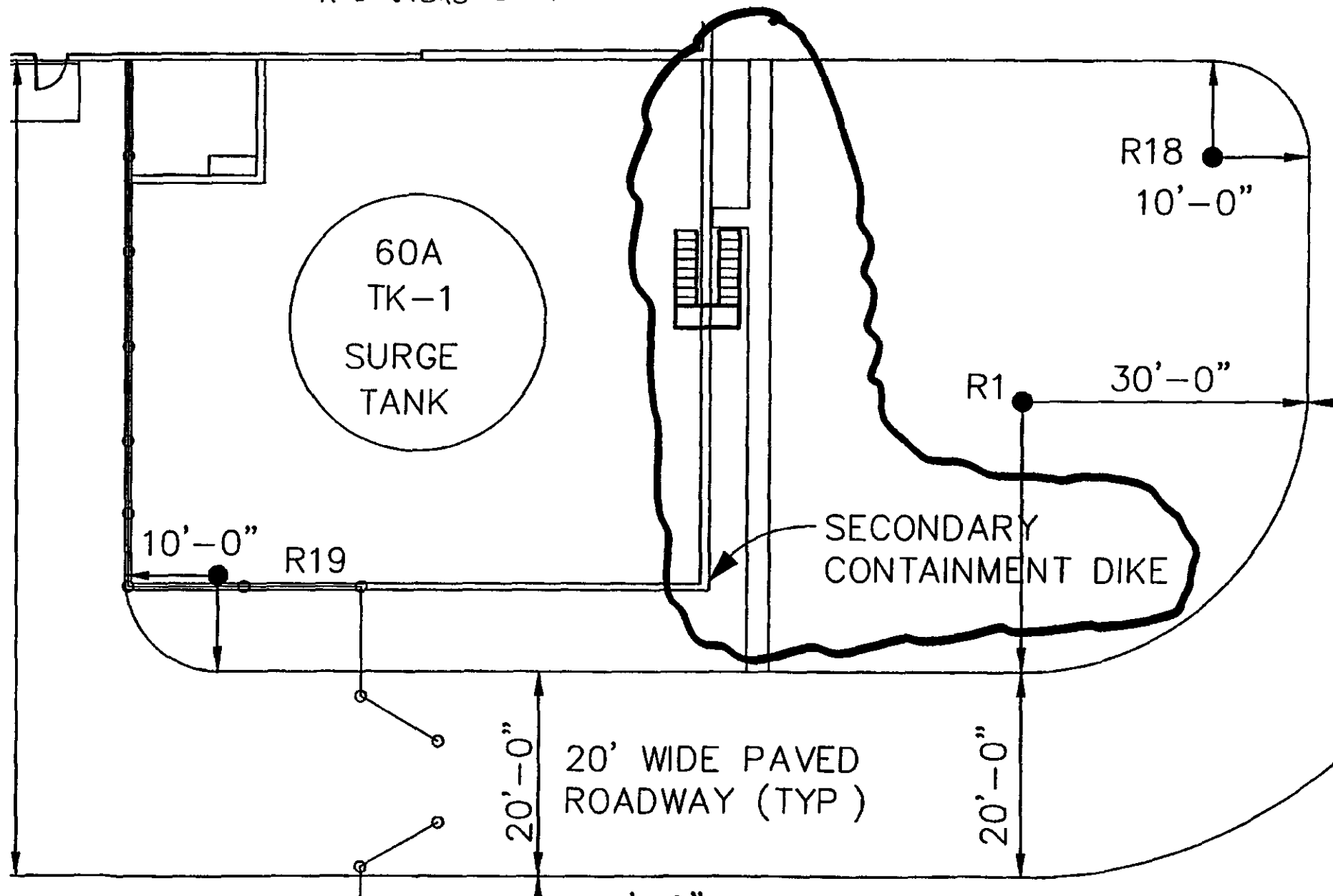
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H-2-89040 SH 1



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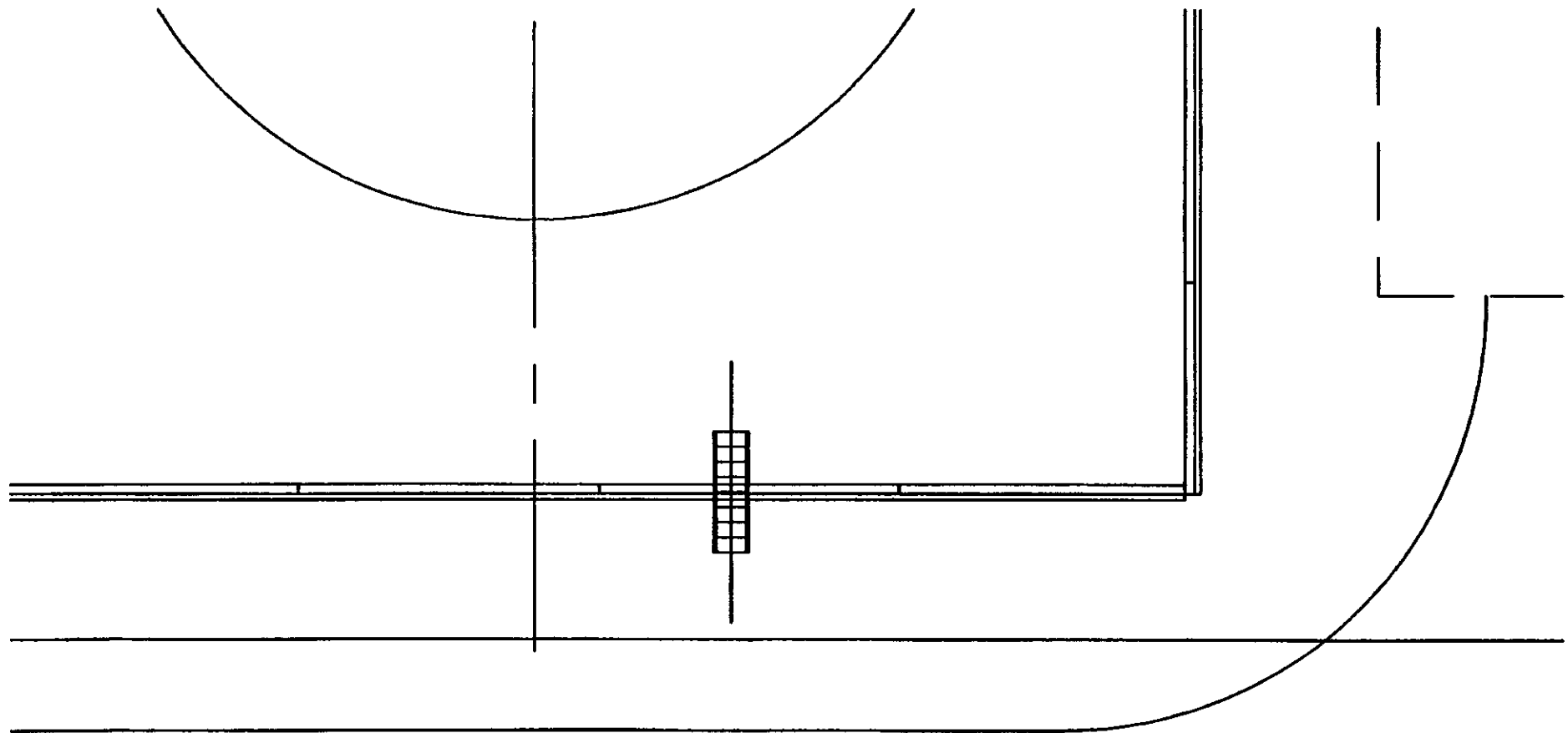
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H 2 89040 SW 1



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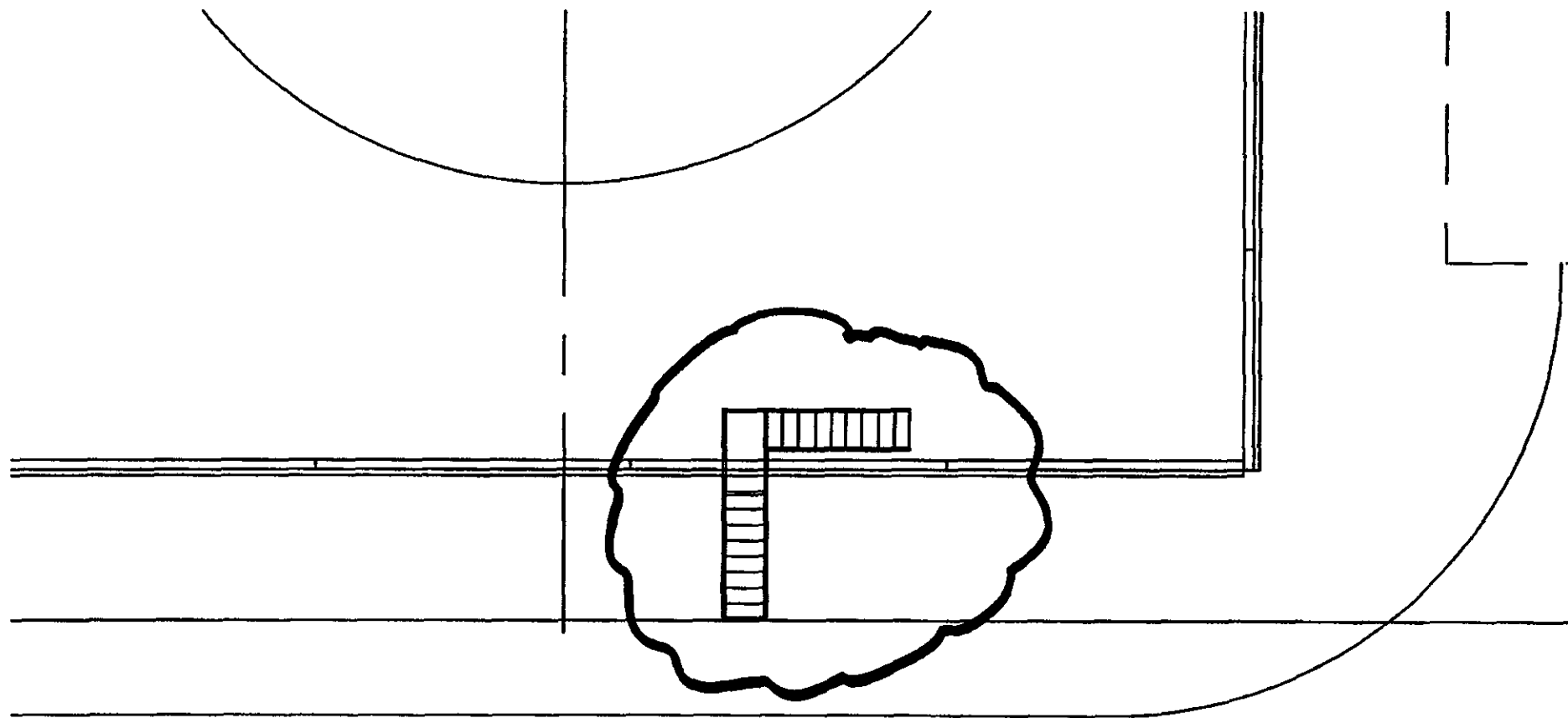


— C PIPE (-)4'-6"
BELOW GRADE

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ECN 647892 PG 17 OF 27

H 2-89014 SW 1

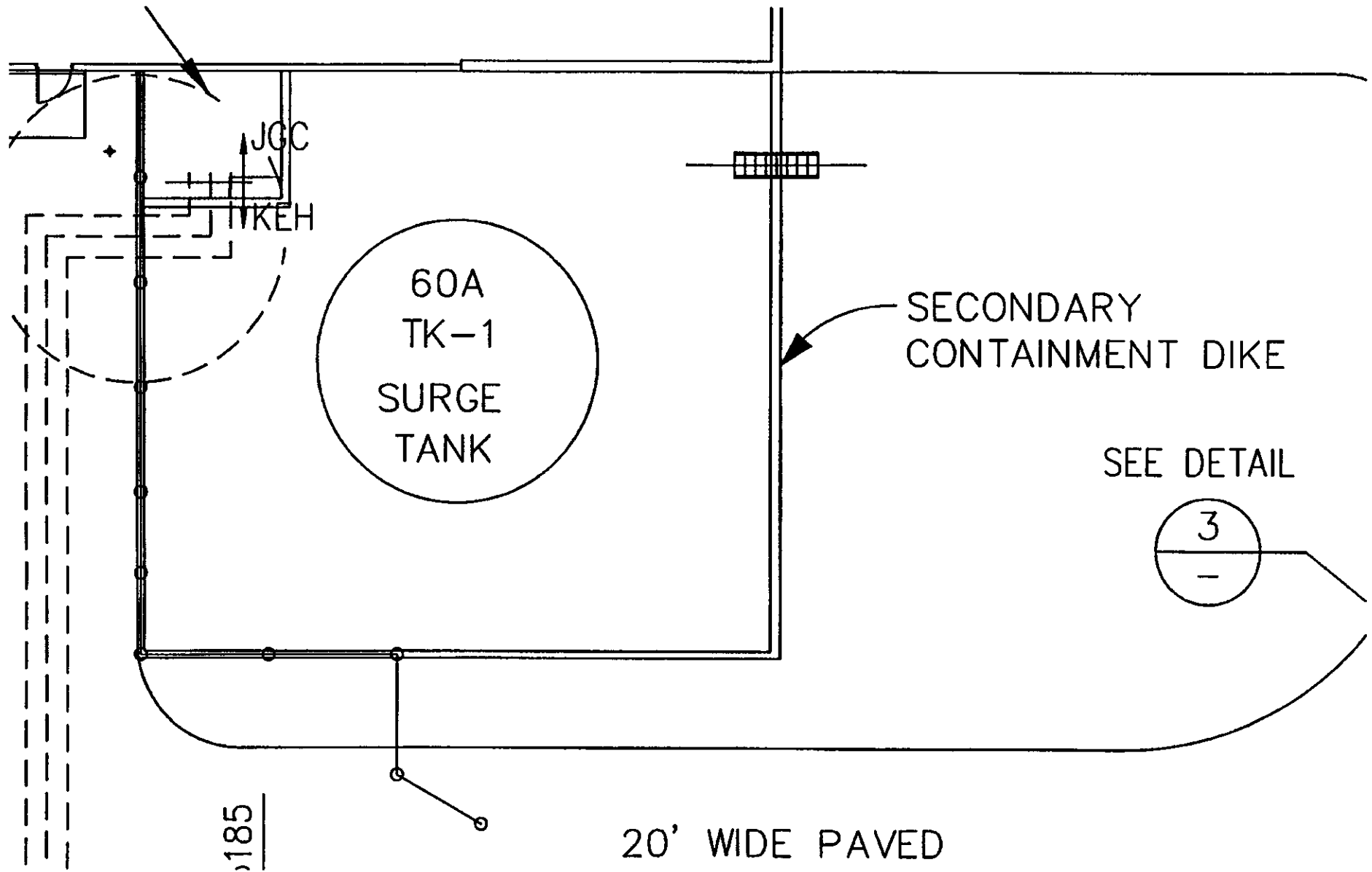


— C PIPE (-) 4'-6"
BELOW GRADE

Was

ECN 647892 PG 18 OF 27

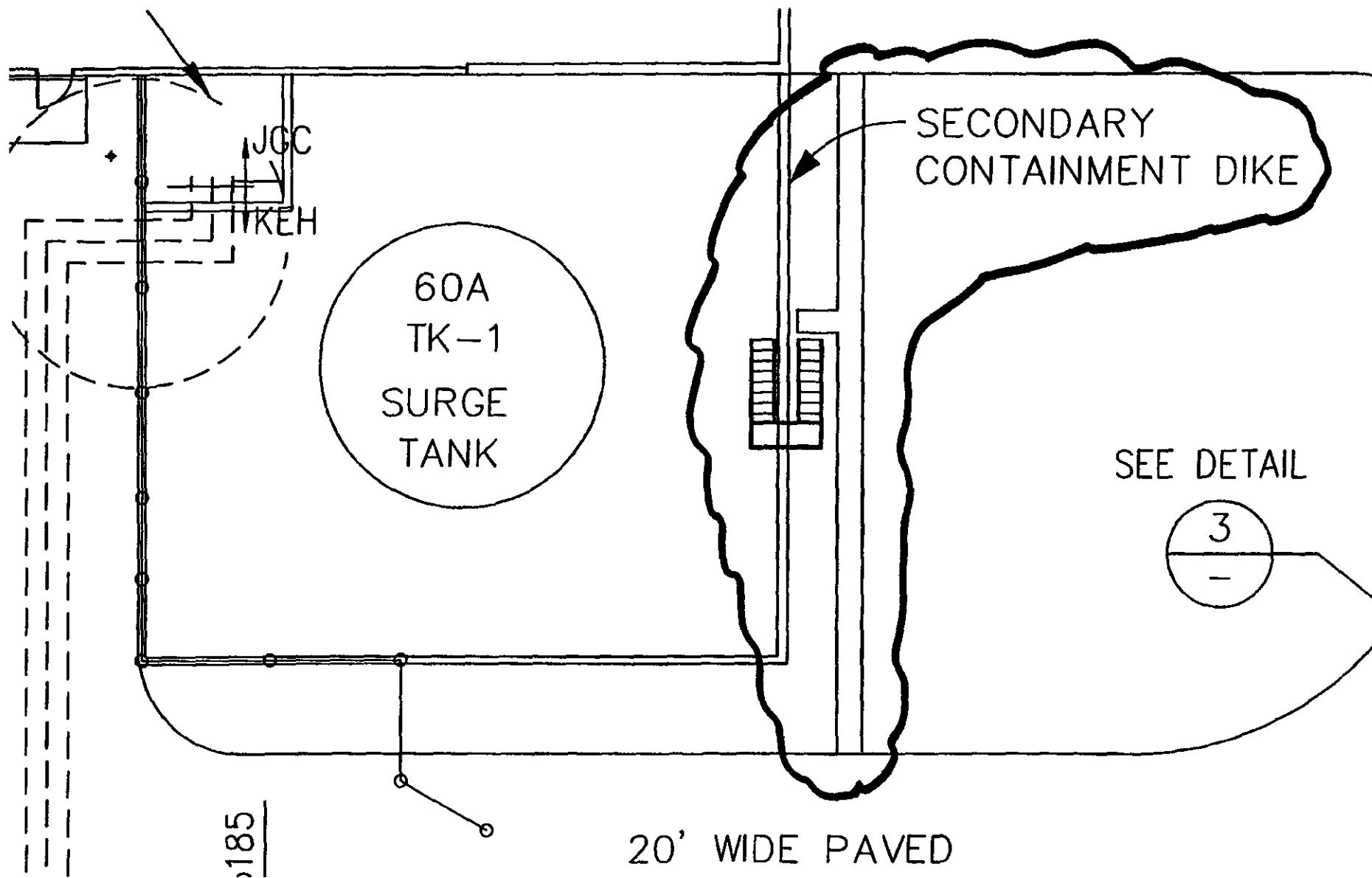
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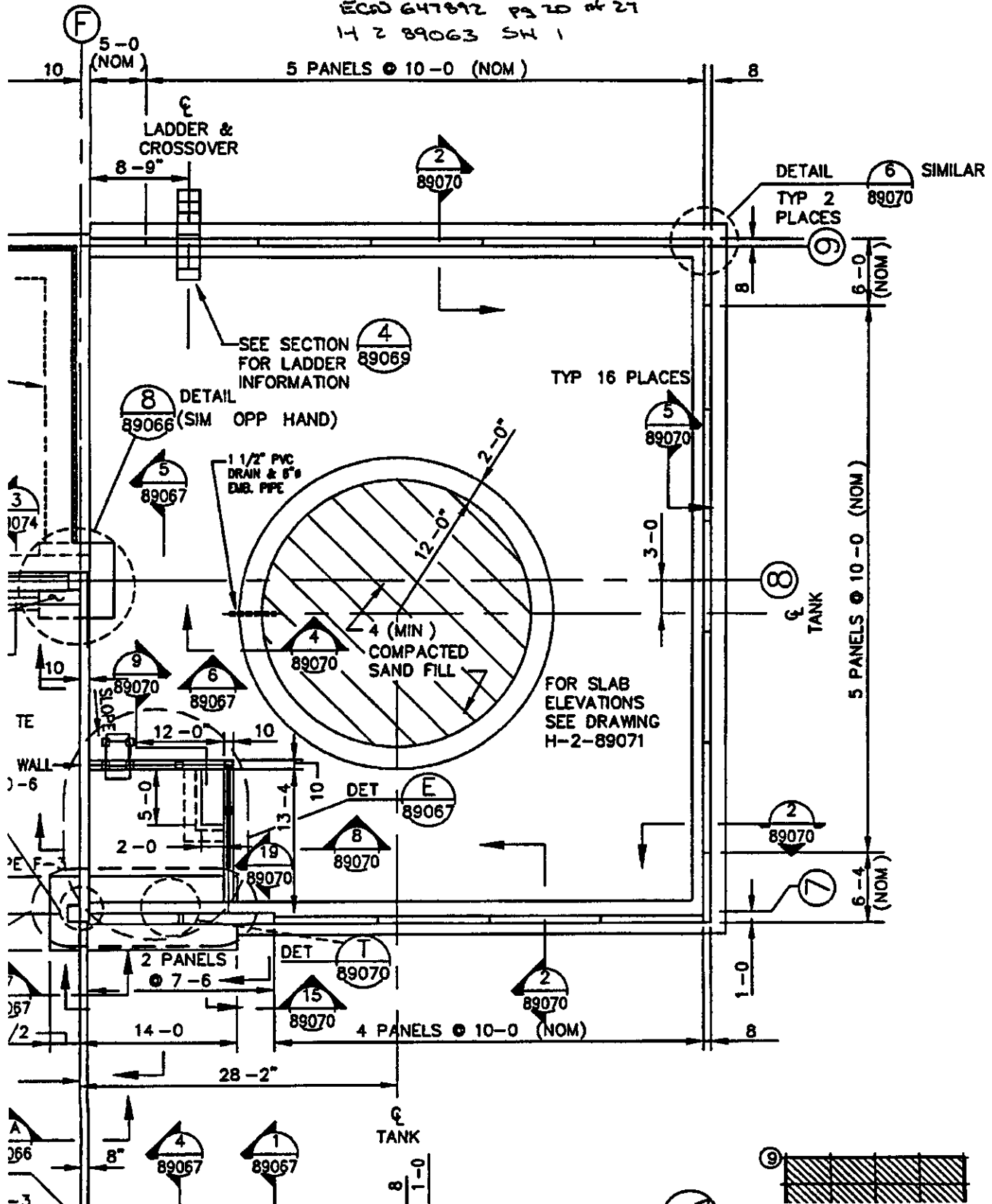
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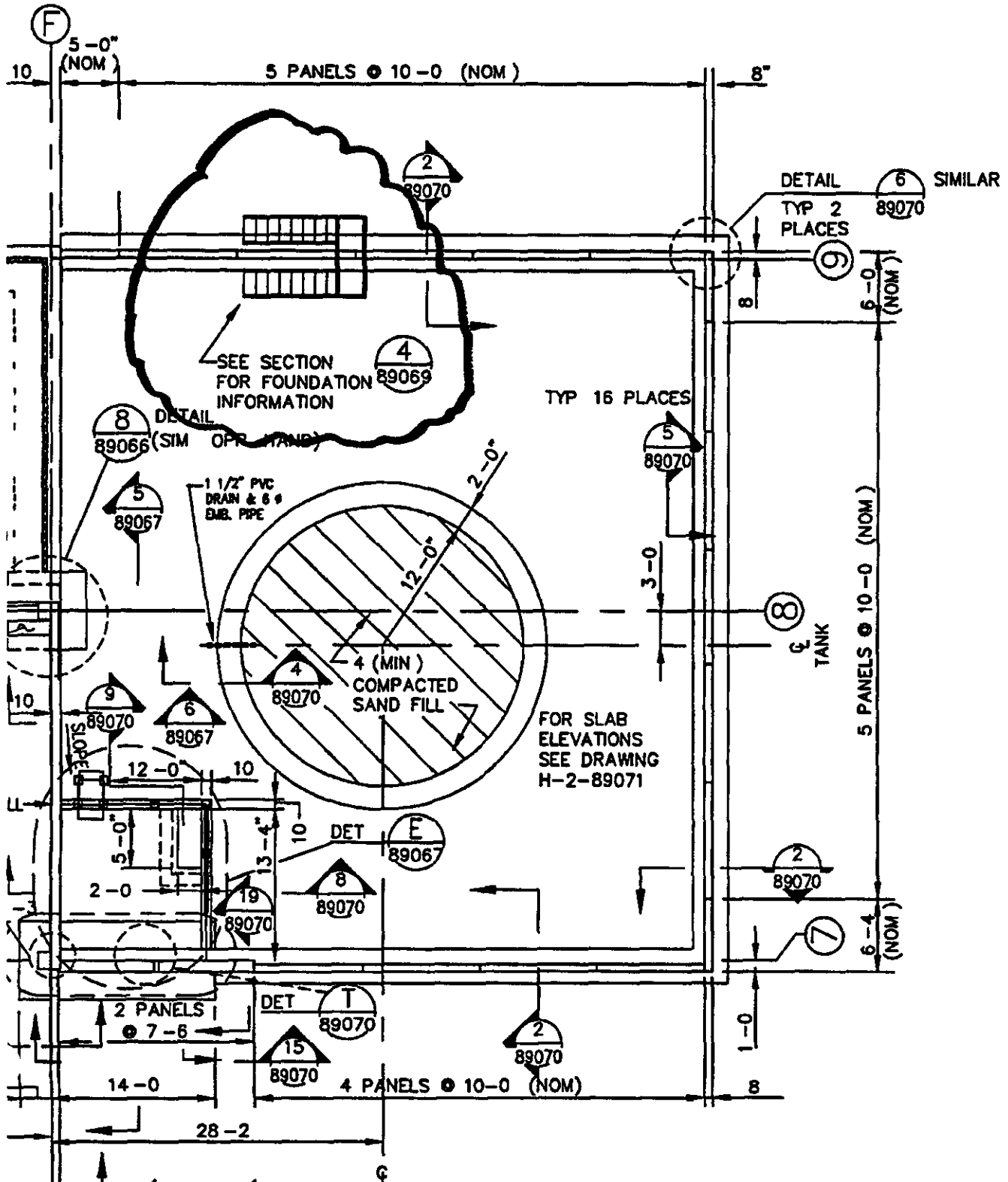


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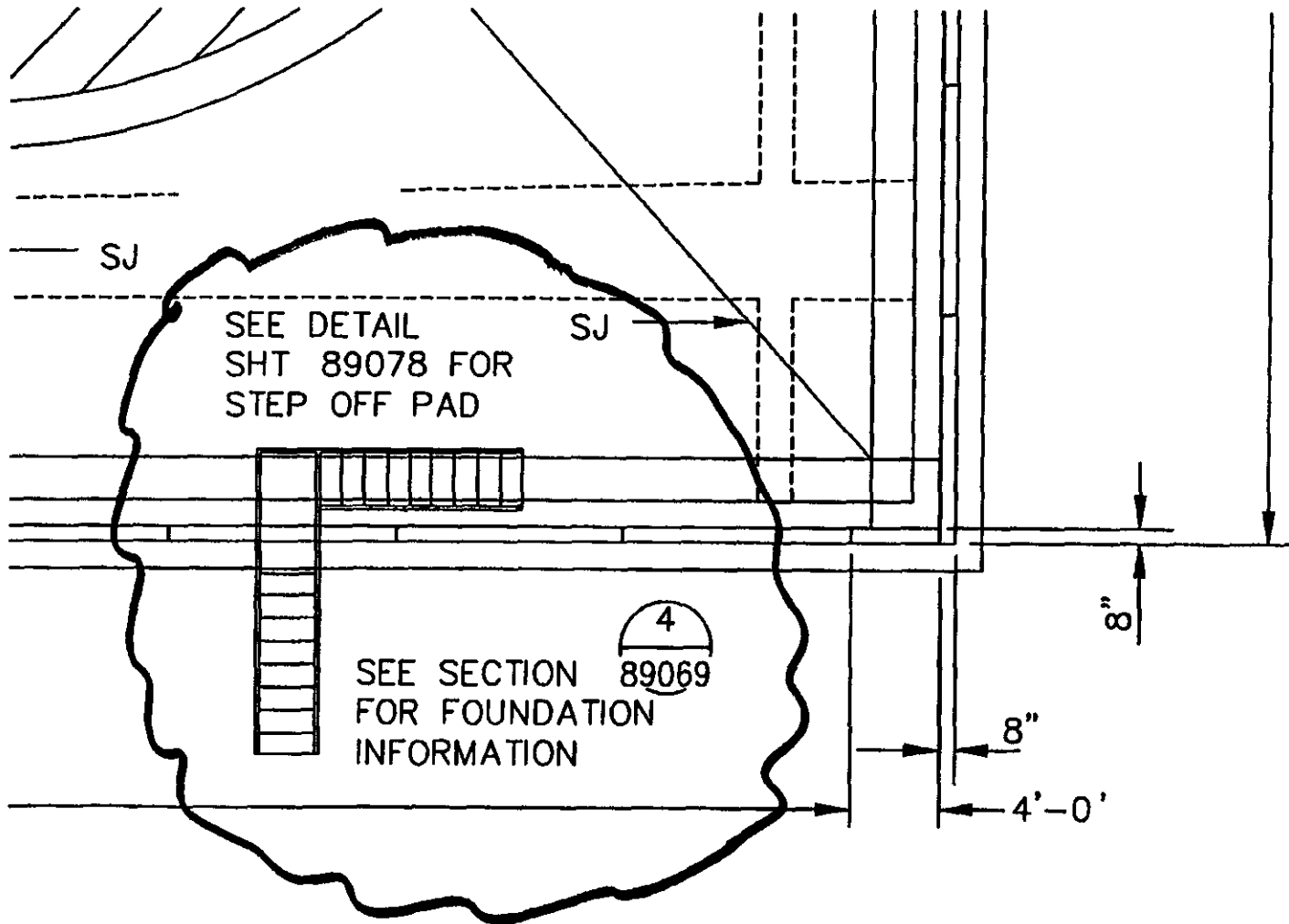
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ECN 647892 pg 21 of 27
H 2 89063 SH 1

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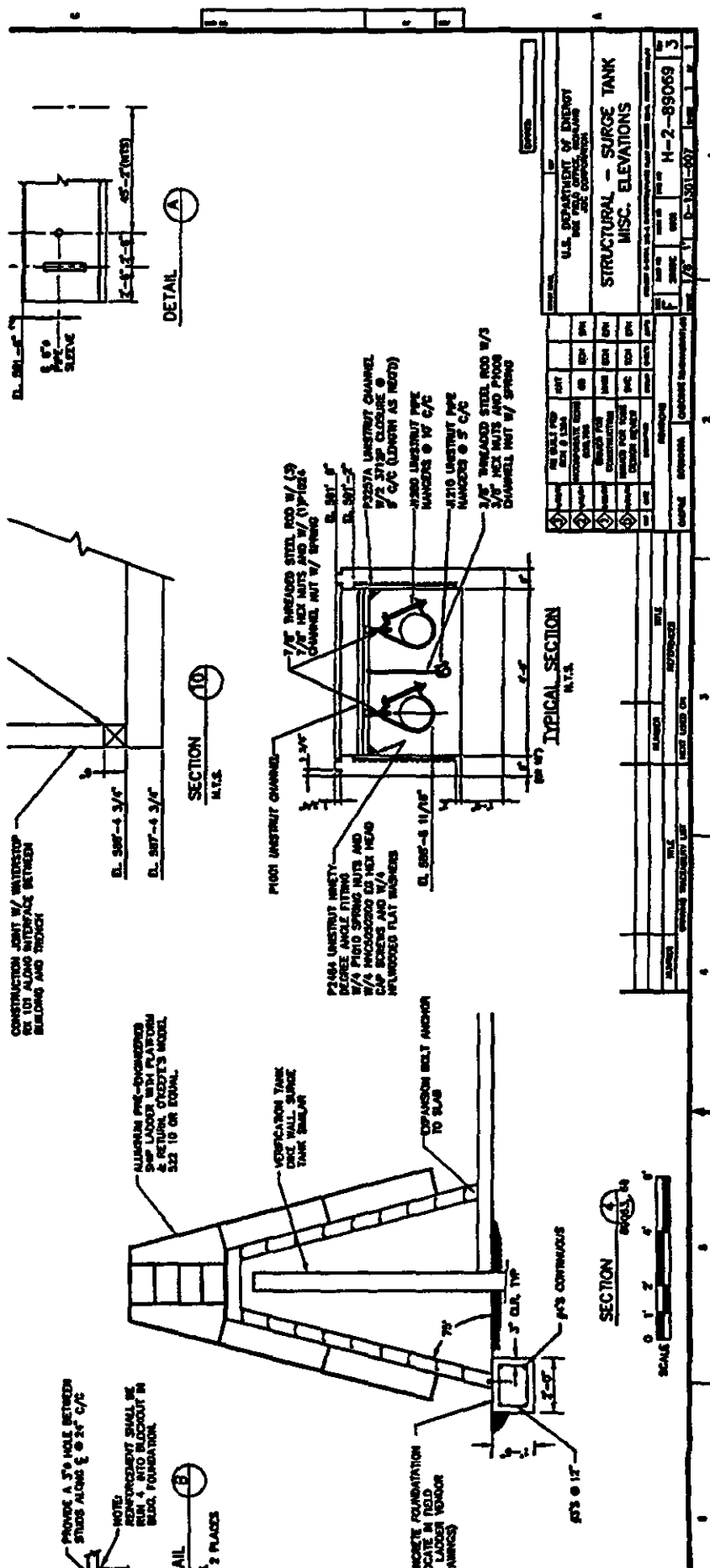


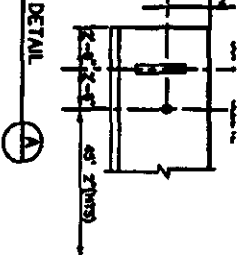
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H 2-89068, SH 1



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11-2 89069 54 1





TYPICAL SECTION

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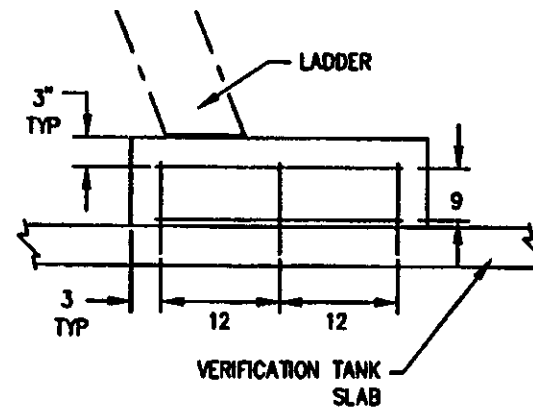
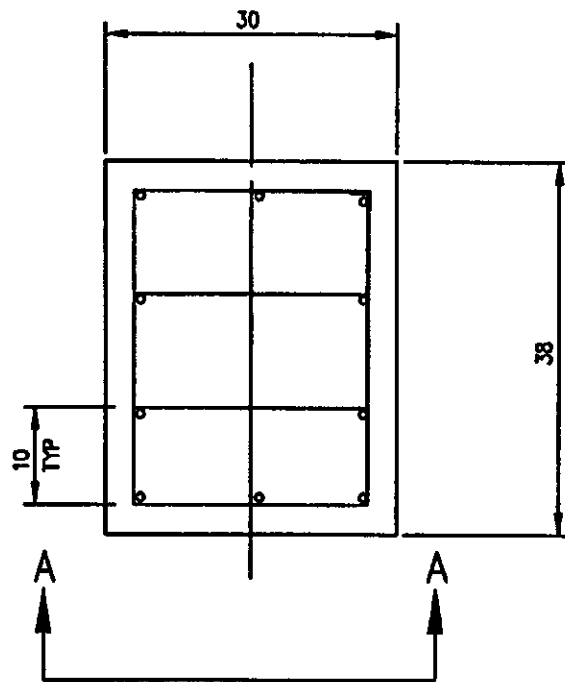
**BOX FIELD OFFICE, HAWAII
AND COMPOSITION**

U.S. DEPARTMENT OF ENERGY

"Was"

ECN 647892 PG 26 OF 27
14-2-89078 SH 1

SCALE 0 2 4 8 12

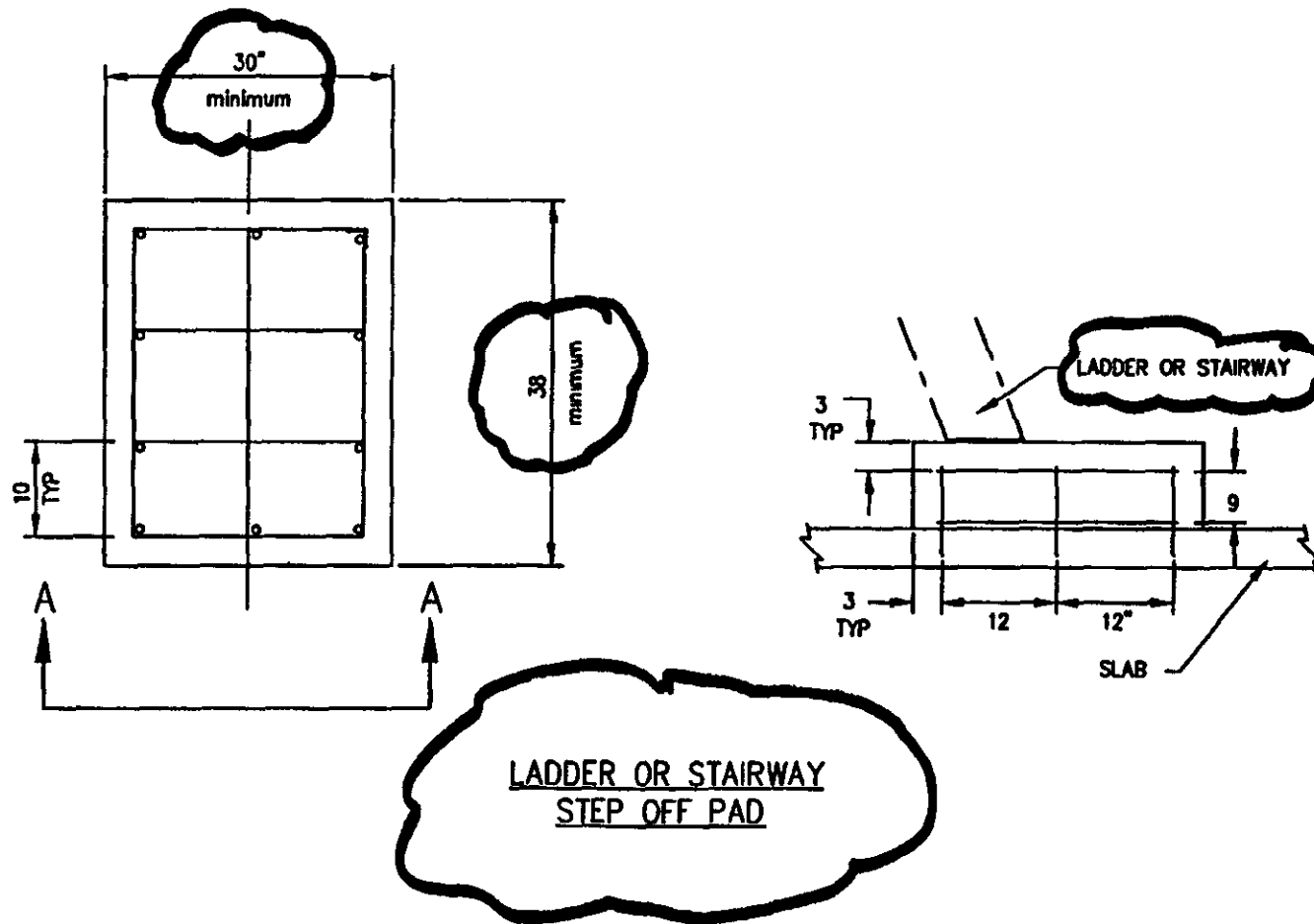


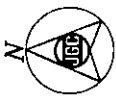
SHIP S LADDER PLAN
VERIFICATION TANK

I-2

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H-2-89078 SH 1





ENGINEERING CHANGE NOTICE

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1 ECN 647892
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2 ECN Category (mark one) Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedeure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>		3 Originator's Name Organization MSIN and Telephone No AF Crane, 32230, S6-72, 372-3152		4 USA Required? [] Yes [X] No		5 Date 09/21/98	
		6 Project Title/No /Work Order No Access Stairs/A4055		7 Bldg /Sys /Fac No 2025E		8 Approval Designator N/A	
		9 Document Numbers Changed by this ECN (includes sheet no and rev) See Blk 13a		10 Related ECN No(s) N/A		11 Related PO No N/A	
12a Modification Work [X] Yes (fill out Blk 12b) [] No (NA Blks 12b 12c 12d)		12b Work Package No EL-98-00588/M CAC 9/23/98		12c Modification Work Complete Design Authority/Cog Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECN only) N/A Design Authority/Cog Engineer Signature & Date	
13a Description of Change H-2-89033, Sh 1, Rev 2 H-2-89036, Sh 1, Rev 2 H-2-89039, Sh 1, Rev 4 H-2-89040, Sh 1, Rev 2 H-2-89044, Sh 1, Rev 4 See Continuation Sheet				13b Design Baseline Document? [X] Yes [] No H-2-89063, Sh 1, Rev 3 H-2-89068, Sh 1, Rev 3 H-2-89069, Sh 1, Rev 3 H-2-89078, Sh 1, Rev 4			
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15 Distribution (include name MSIN and no of copies) MW Bowman S6-72 (1) RJ Huth S6-72 (1) AF Crane S6-72 (1)* JM Isdell G3-17 (1)* BS Darling T4-61 (1) NJ Sullivan S6-72 (1) DL Flyckt S6-71 (1) AK Yoakum S6-71 (1) JE Geary S6-71 (1) WCC Planning S6-71 (1)*						RELEASE STAMP SEP 23 1998 DATE STA 30 HANFORD RELEASE ID: 25	
*Advance Copy							

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ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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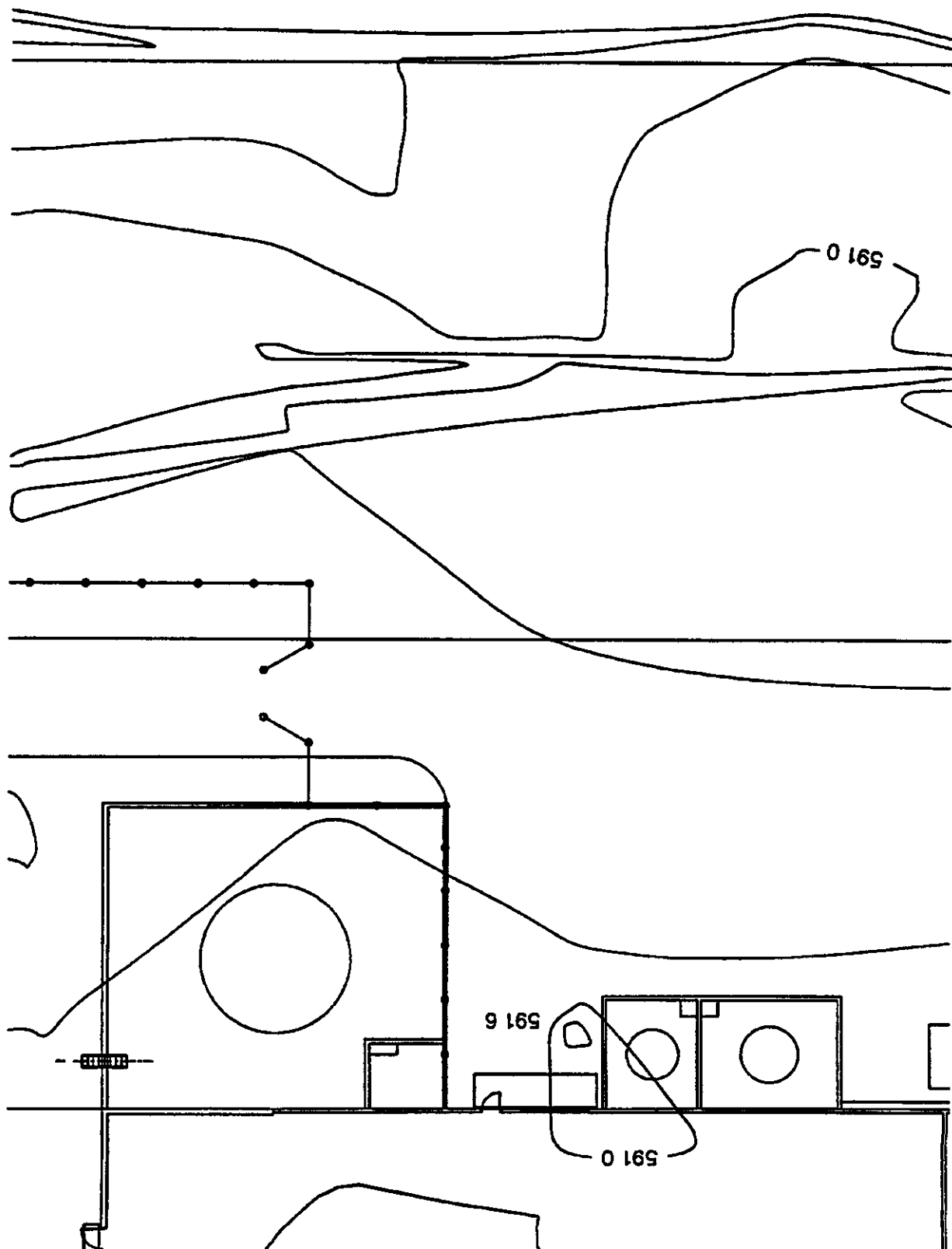
ECN 647892

Date 9/21/98

- H-2-89033, Sh 1, Zone D-3 Replace ladder with stairway
- H-2-89036, Sh 1, Zone E-4 Replace ladder with stairway
- H-2-89039, Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89040 Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89044, Sh 1, Zone B-4 Replace ladder with stairway & show new sidewalk
Zone E-4 Replace ladder with stairway
- H-2-89063, Sh 1, Zone F-2 Replace ladder with stairway Delete 8'-9" dimension and
ladder & crossover centerline callout Change Section 4, Dwg 89069
callout to read "See Section For Foundation Information"
- H-2-89068, Sh 1, Zone C-3 Replace ladder with stairway Delete 10'-0" & 3'-5 1/2"
dimensions, landing and ladder & crossover centerline callout Change
callout to read "See Section For Foundation Information" with reference to
Dwg 89069, Section 4
- H-2-89069, Sh 1, Zone A-6 Add "minimum" to foundation width dimension (2'-0)
callout Change foundation text to read "Ladder Or Stairway Concrete
Foundation (Locate In Field)" Change ladder description text to read
"Aluminum Pre-Engineered Ship Ladder With Platform & Return, O'Keefe's
Model 522-10 Or Equal, Or Aluminum Pre-Engineered Stairway See VI Supp
50054 For Stairway Detail "
- H-2-89078, Sh 1, Zone A-7 Change detail title to "Ladder Or Stairway Step Off Pad"
Zone B-6 Change callout to "Ladder Or Stairway" from "Ladder"
Zone B-7 Add "minimum" to step off pad length dimension (38")
Zone B-8 Add "minimum" to step off pad width dimension (30")

Notes

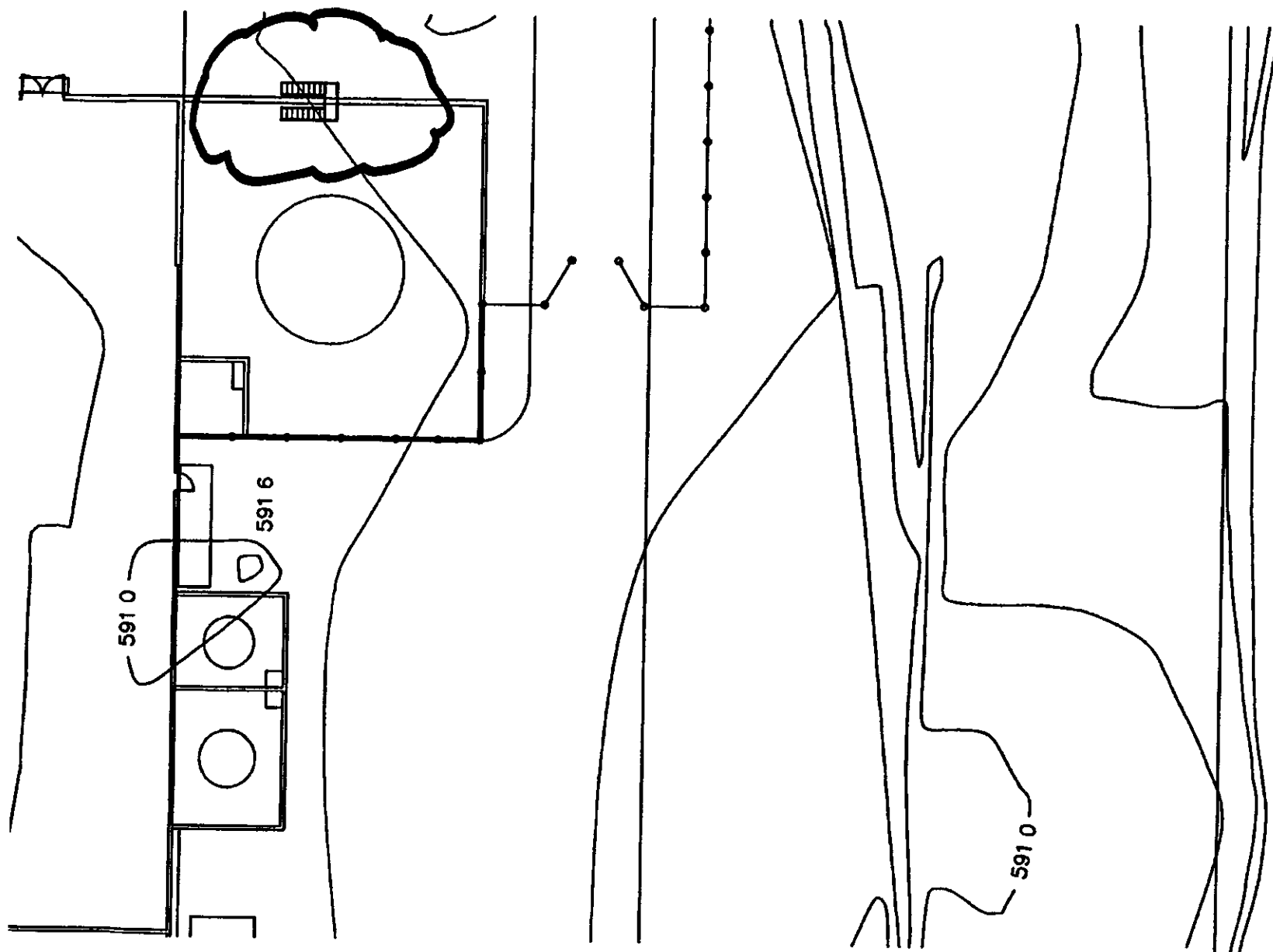
ECN 641892 PG 6 of 27
4-2-89036 SM 1



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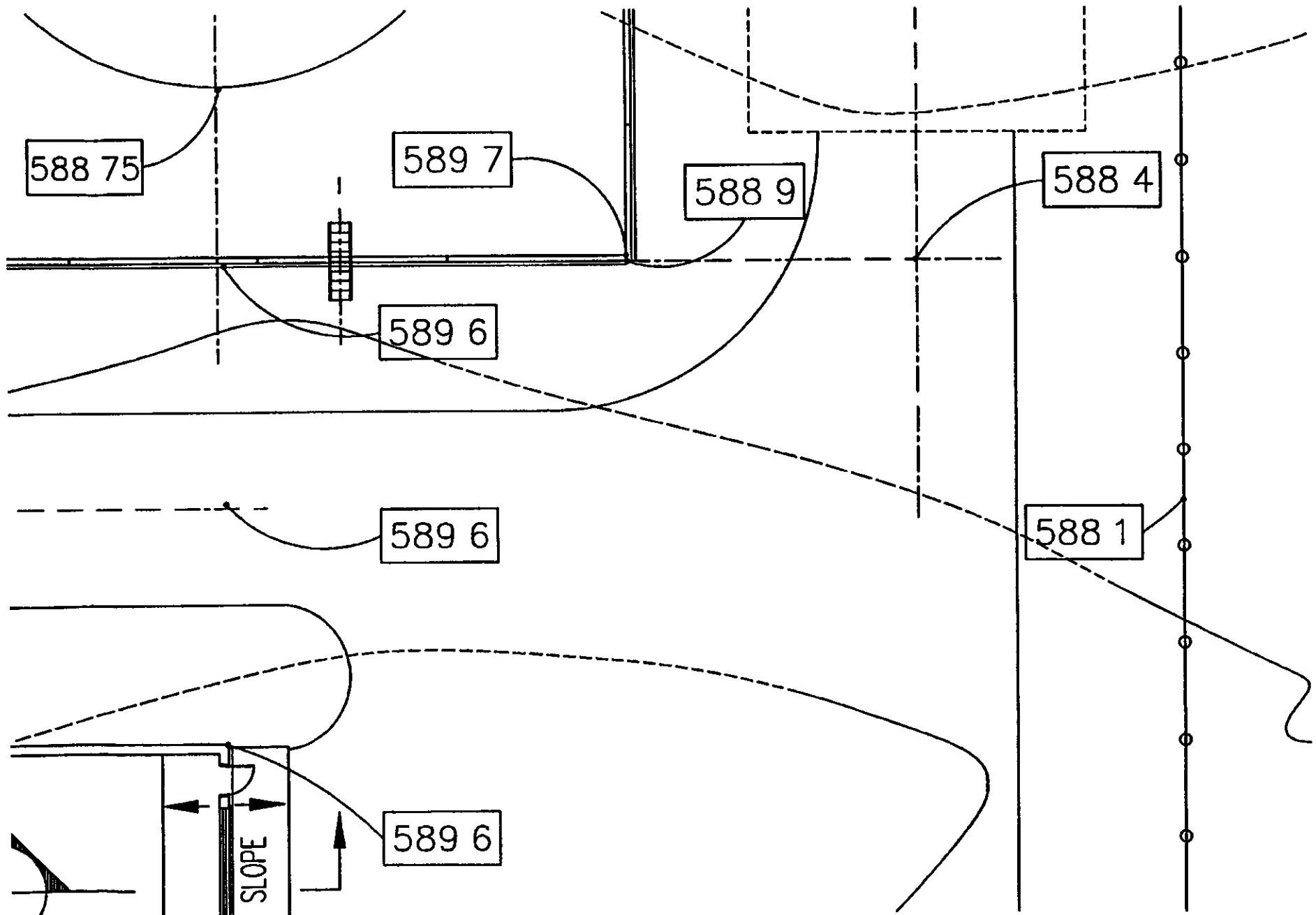
ECN 647892 pg 7 of 27

14-2 89036 SH 1



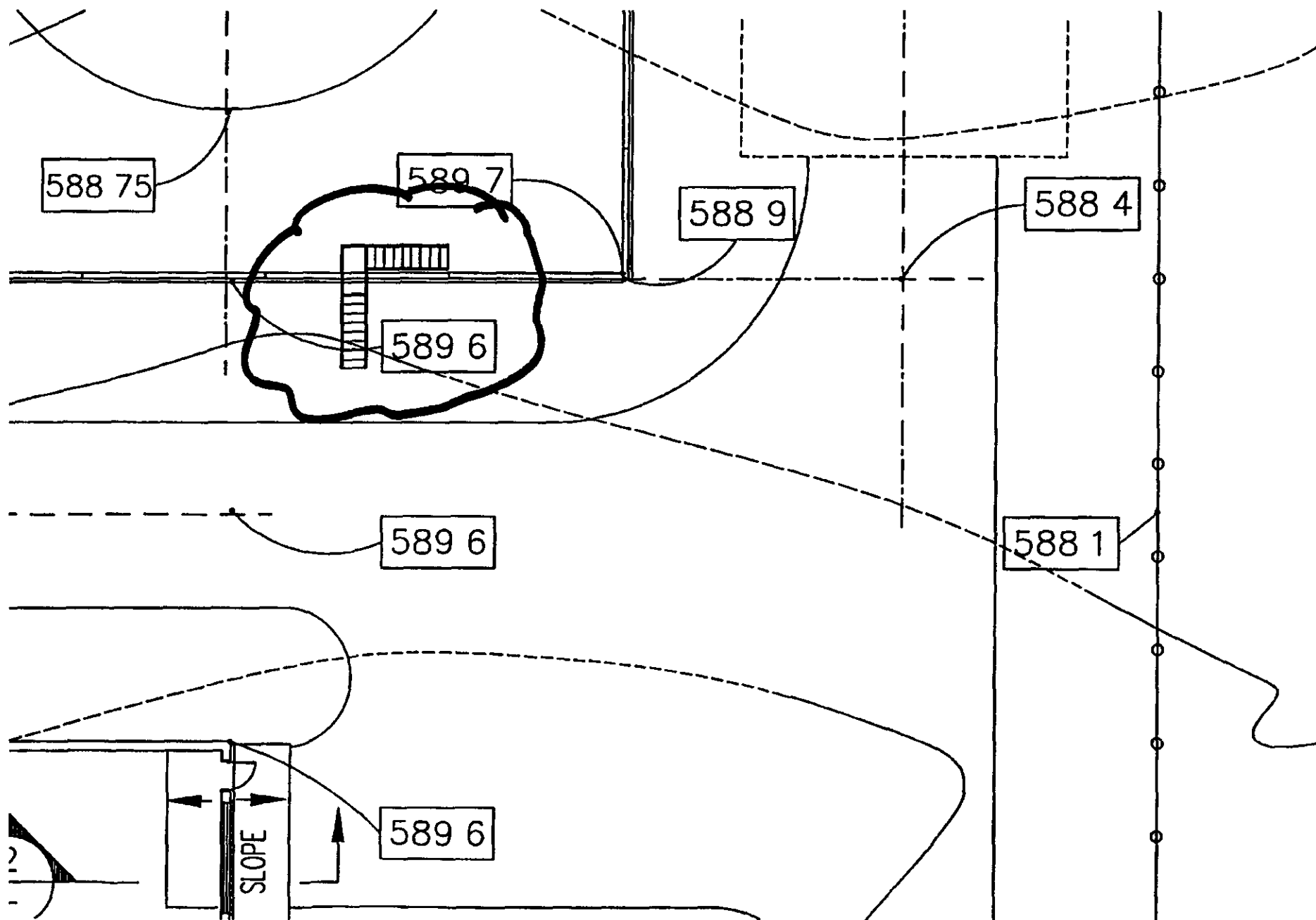
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H 2 89039 SW 1



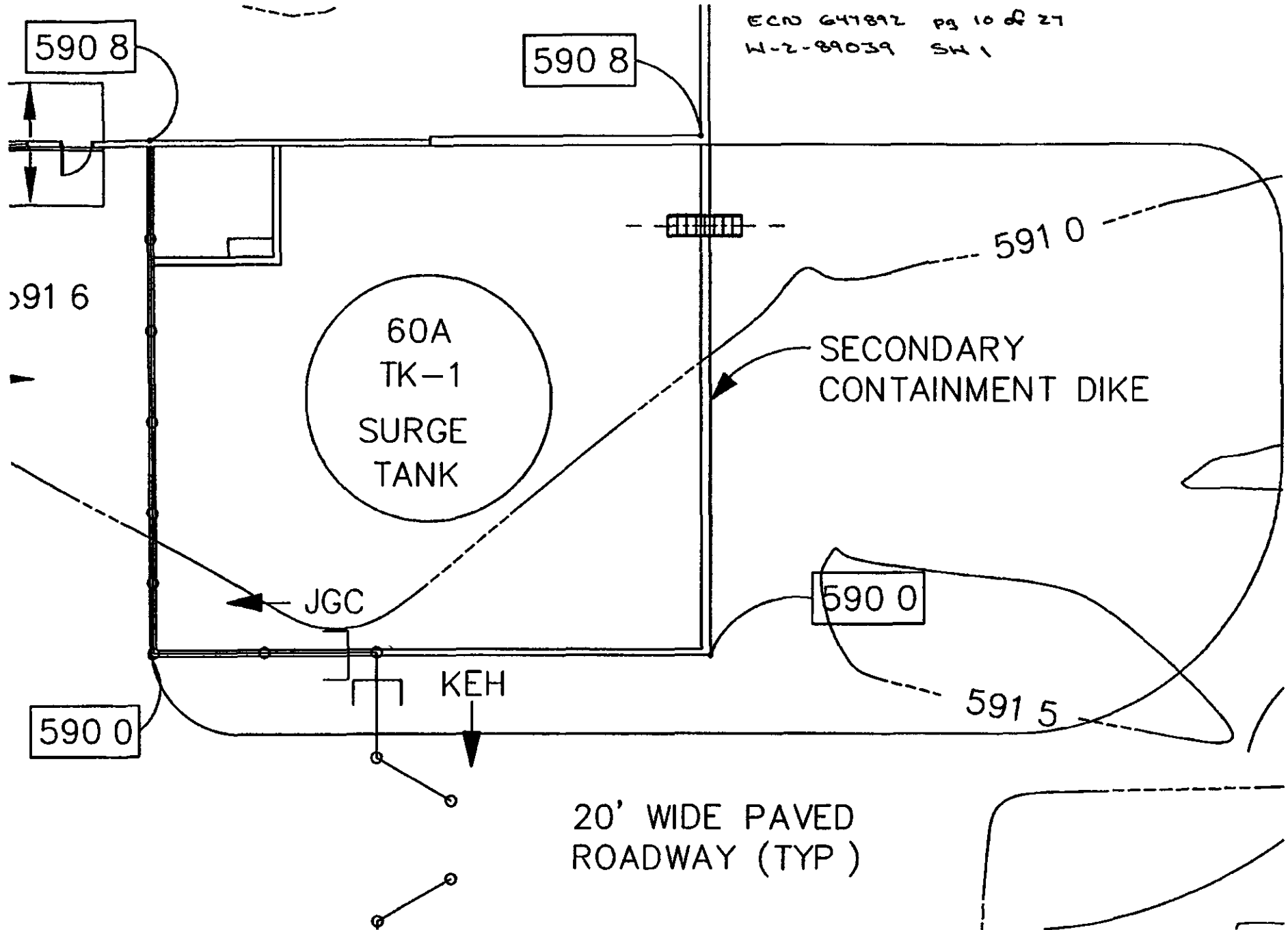
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14-2 89039 SW 1



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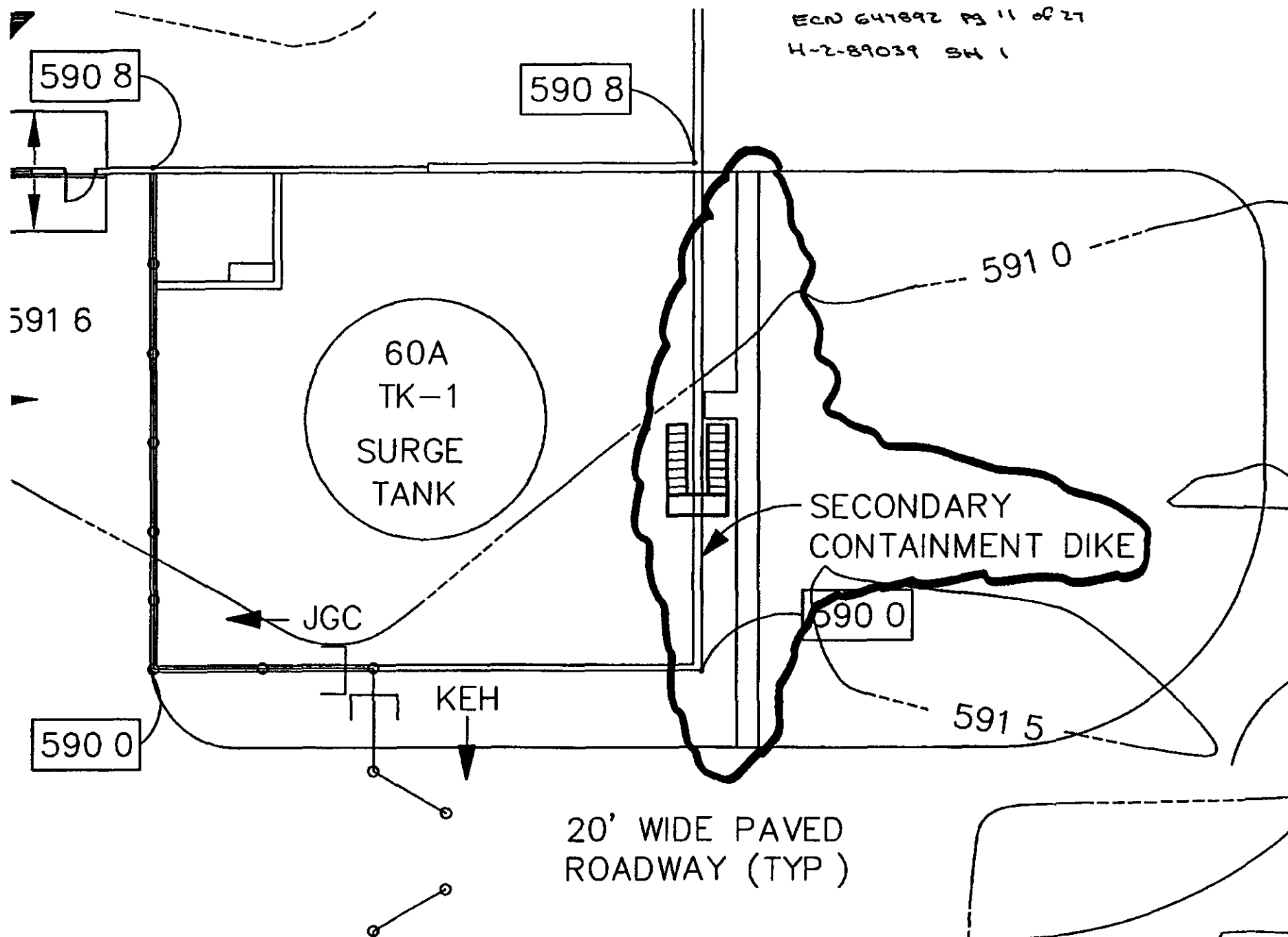
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W-2-89039 SW 1

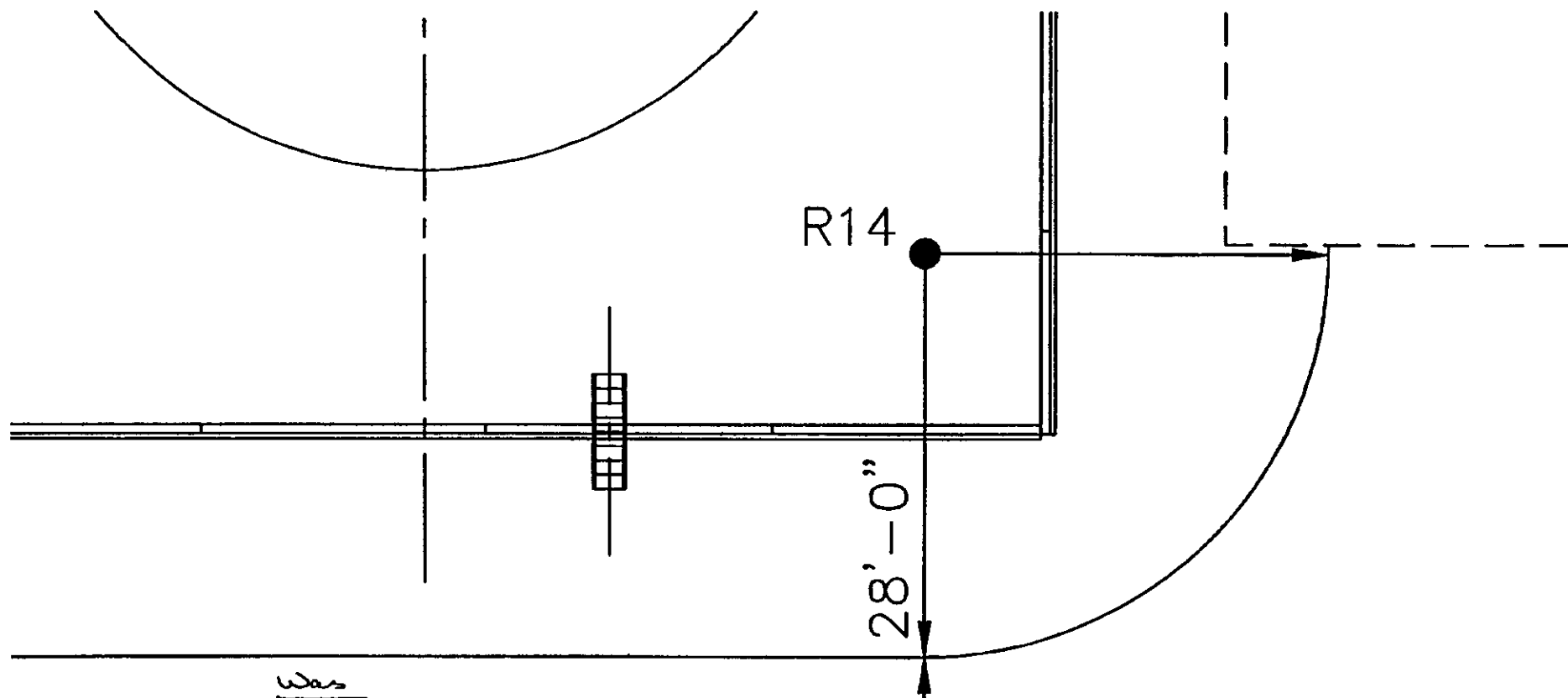


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H-2-89039 SH 1



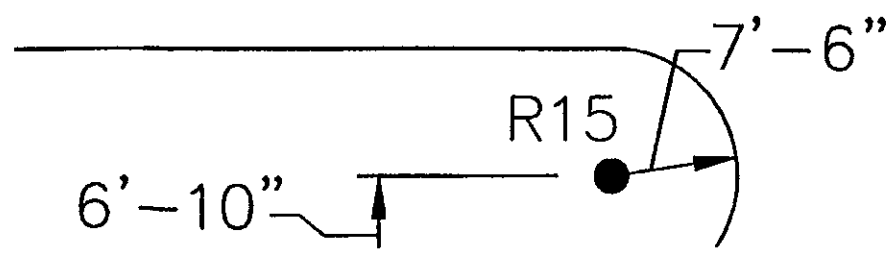


R14

28'-0"

Was

ECN 647892 PG 12 of 21
H-Z 89040 SW 1

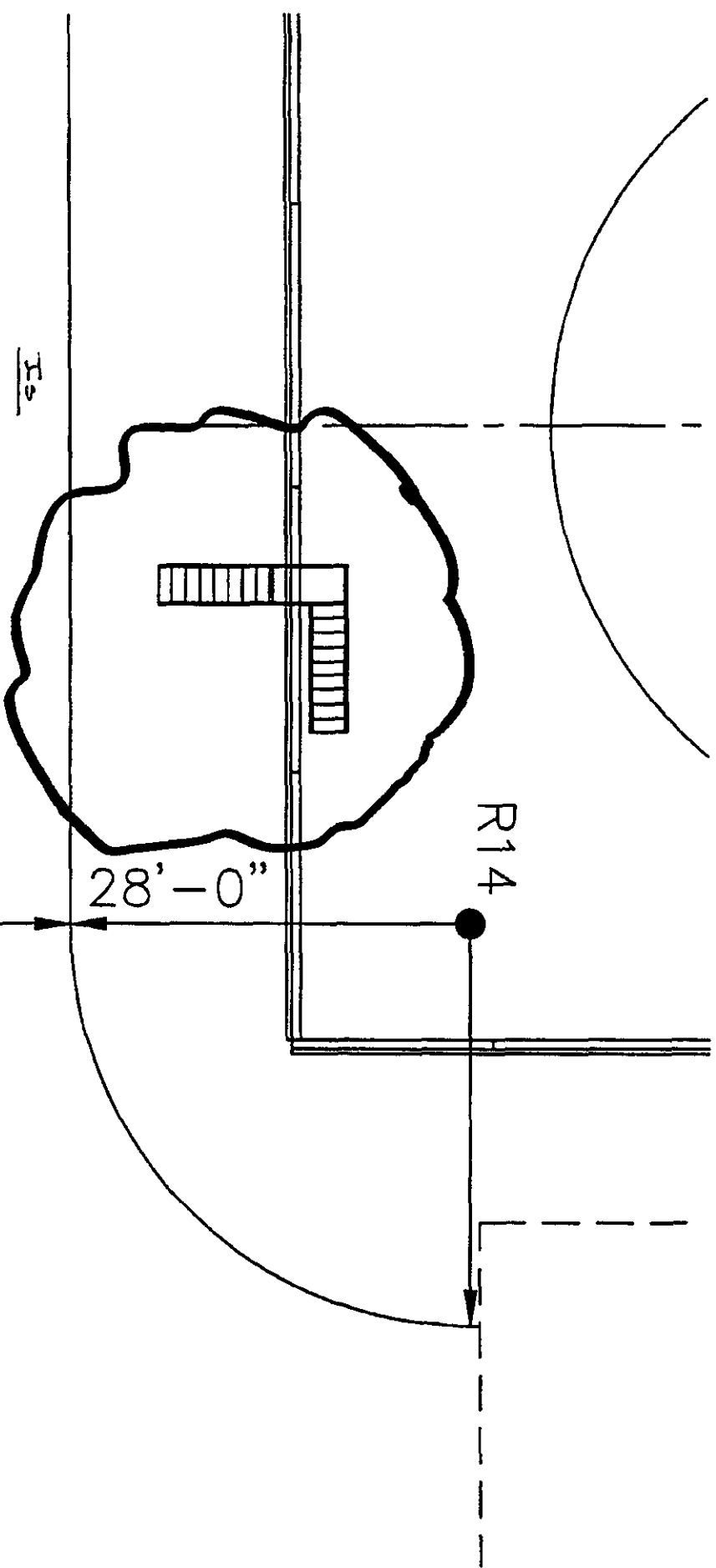


R15

6'-10"

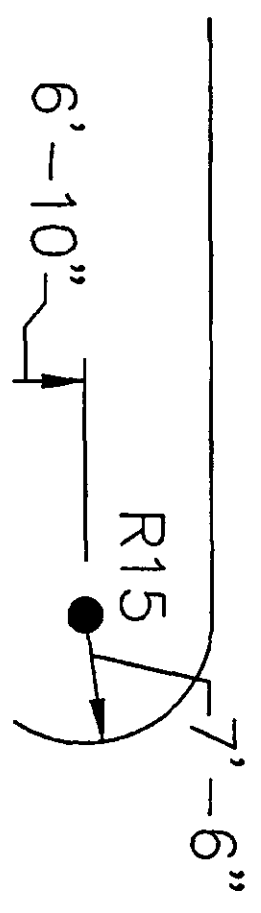
7'-6"

4'-4"



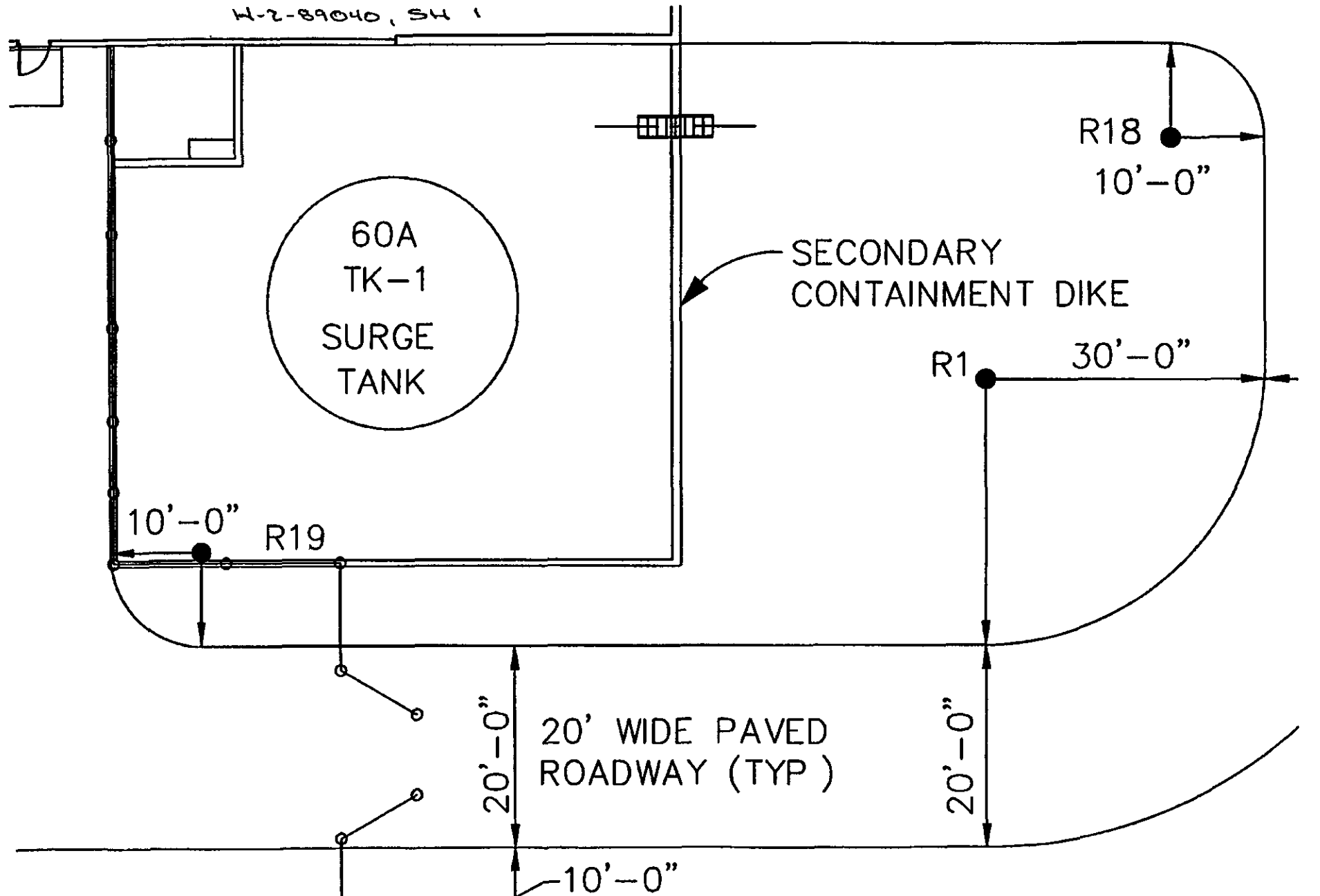
ECAD 647892 PG 13 OF 21
H 2-89040 SH 1

Is



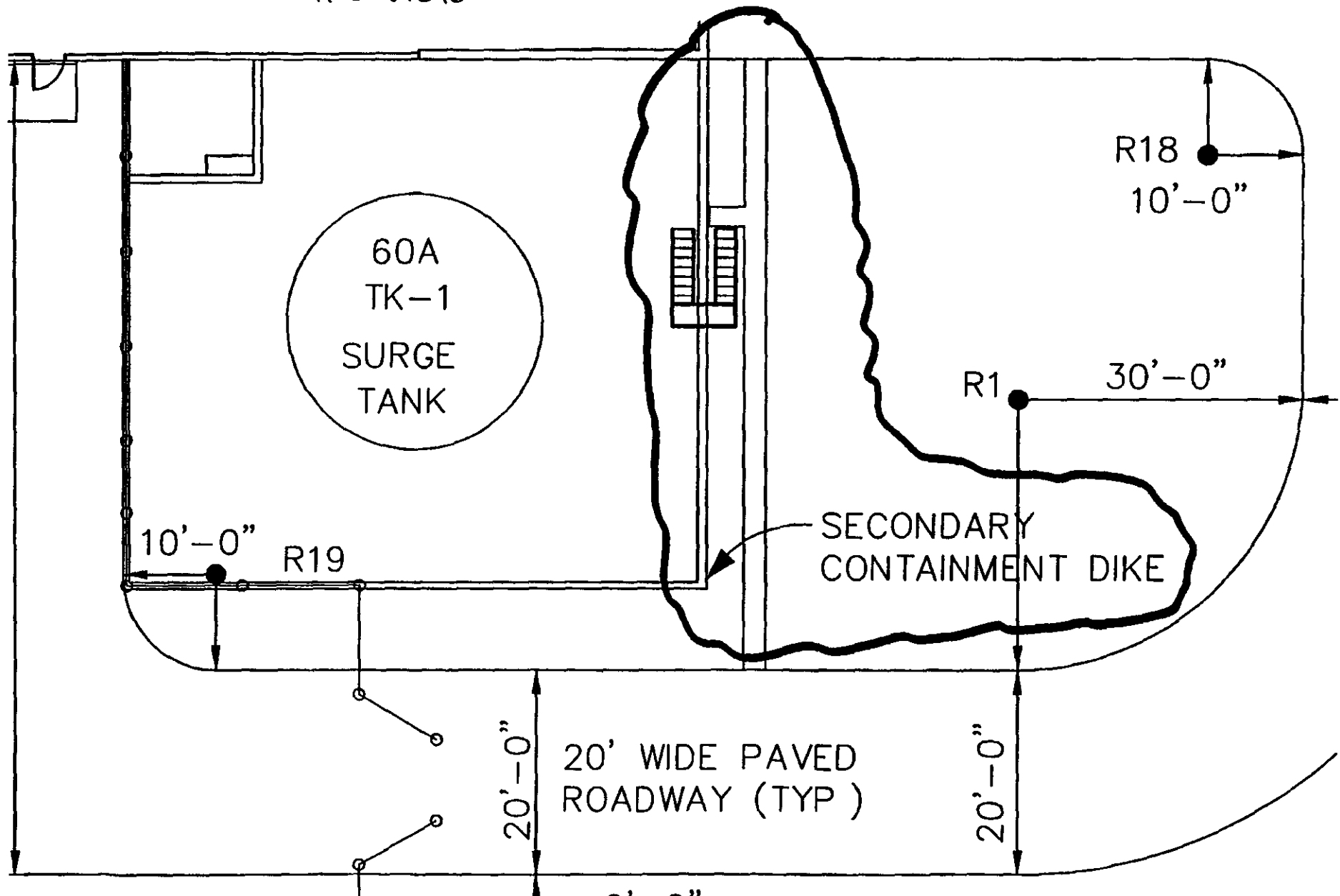
Was

ECN 647892 PG 14 of 27
W-2-89040, SH 1



50

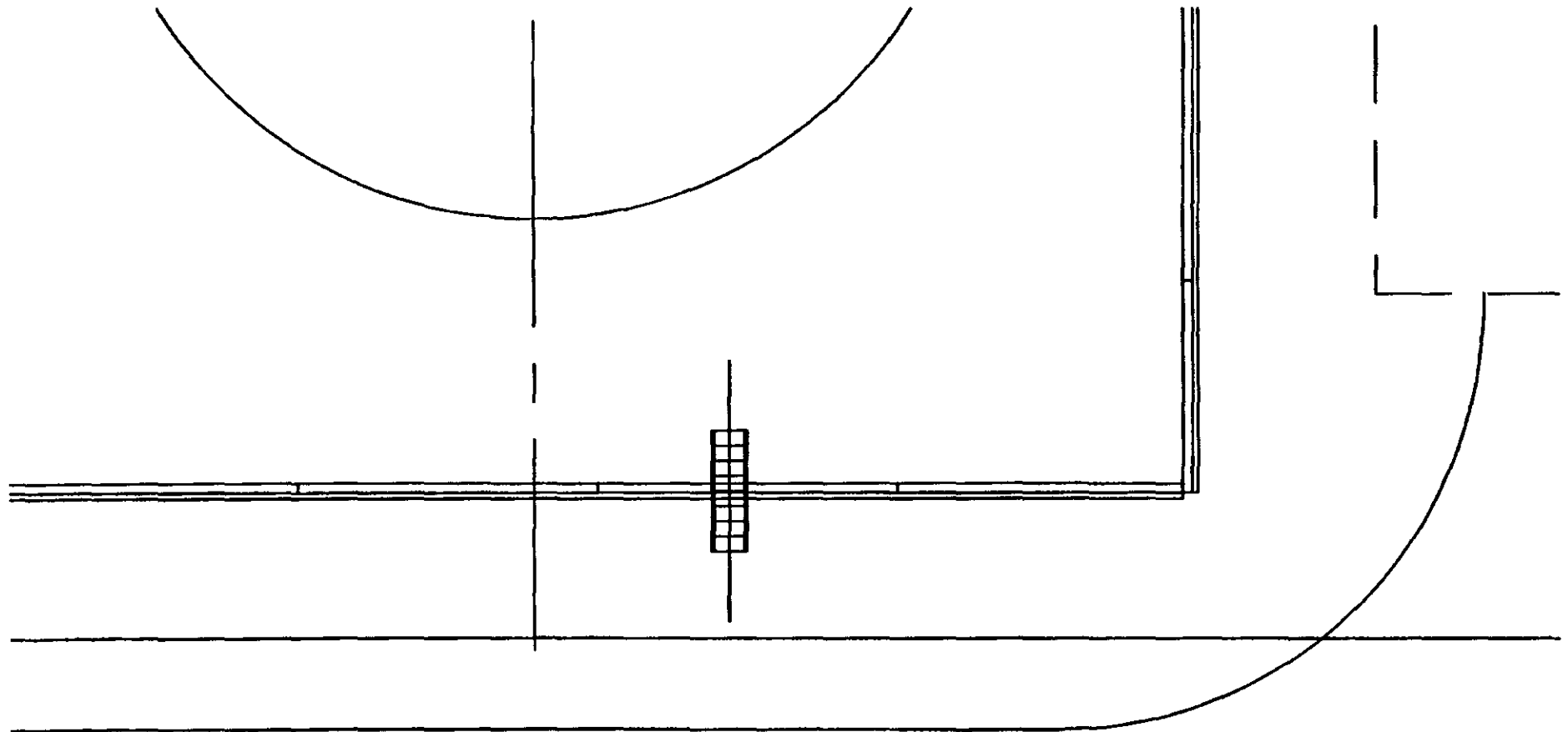
ECN 647892 PG 15 of 27
H-2 89040 SH 1



WHS

ECN 647892 PG 16 OF 27

H-2-89044, SW 1

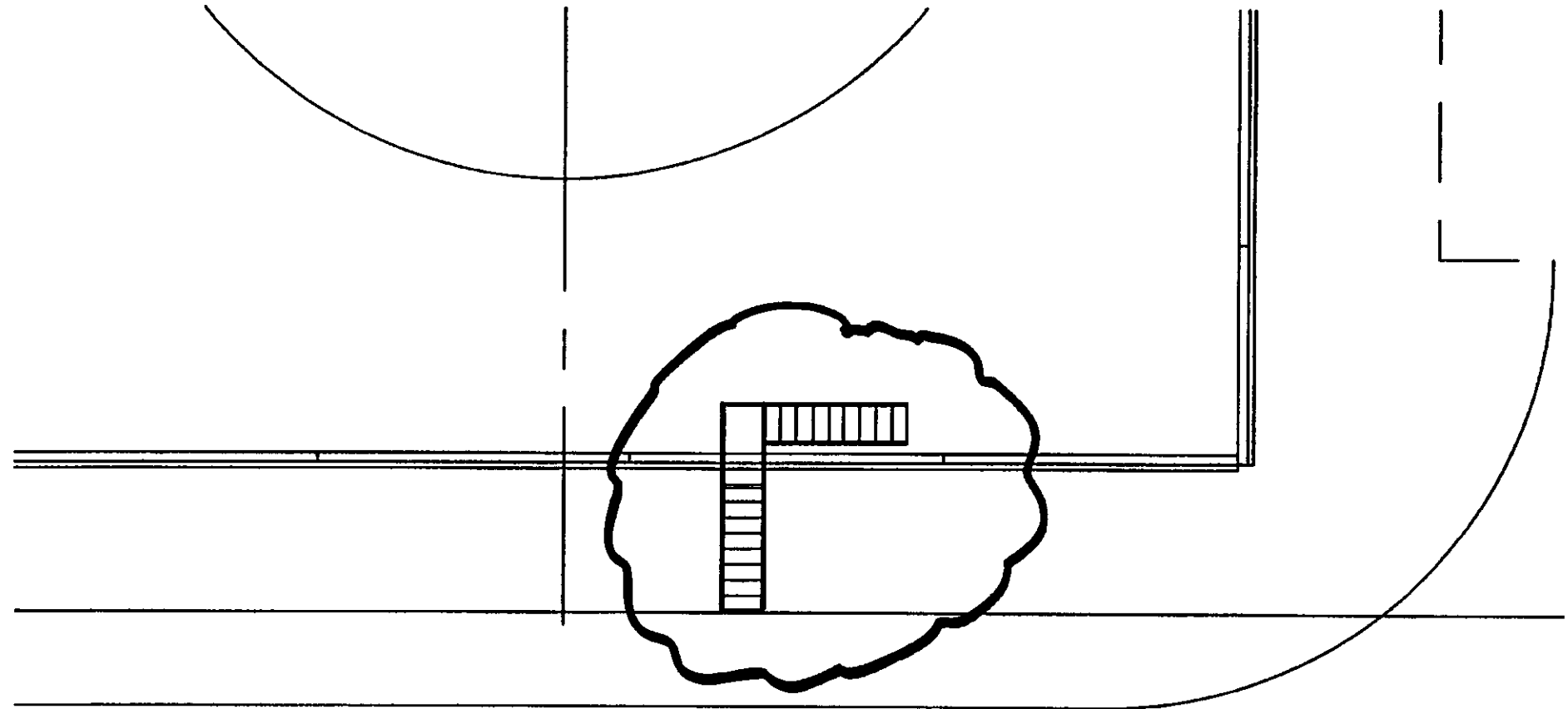


— C PIPE (-)4'-6"
BELOW GRADE

" I₃

ECN 647892, PG 17 of 27

W 2-89014 SW 1

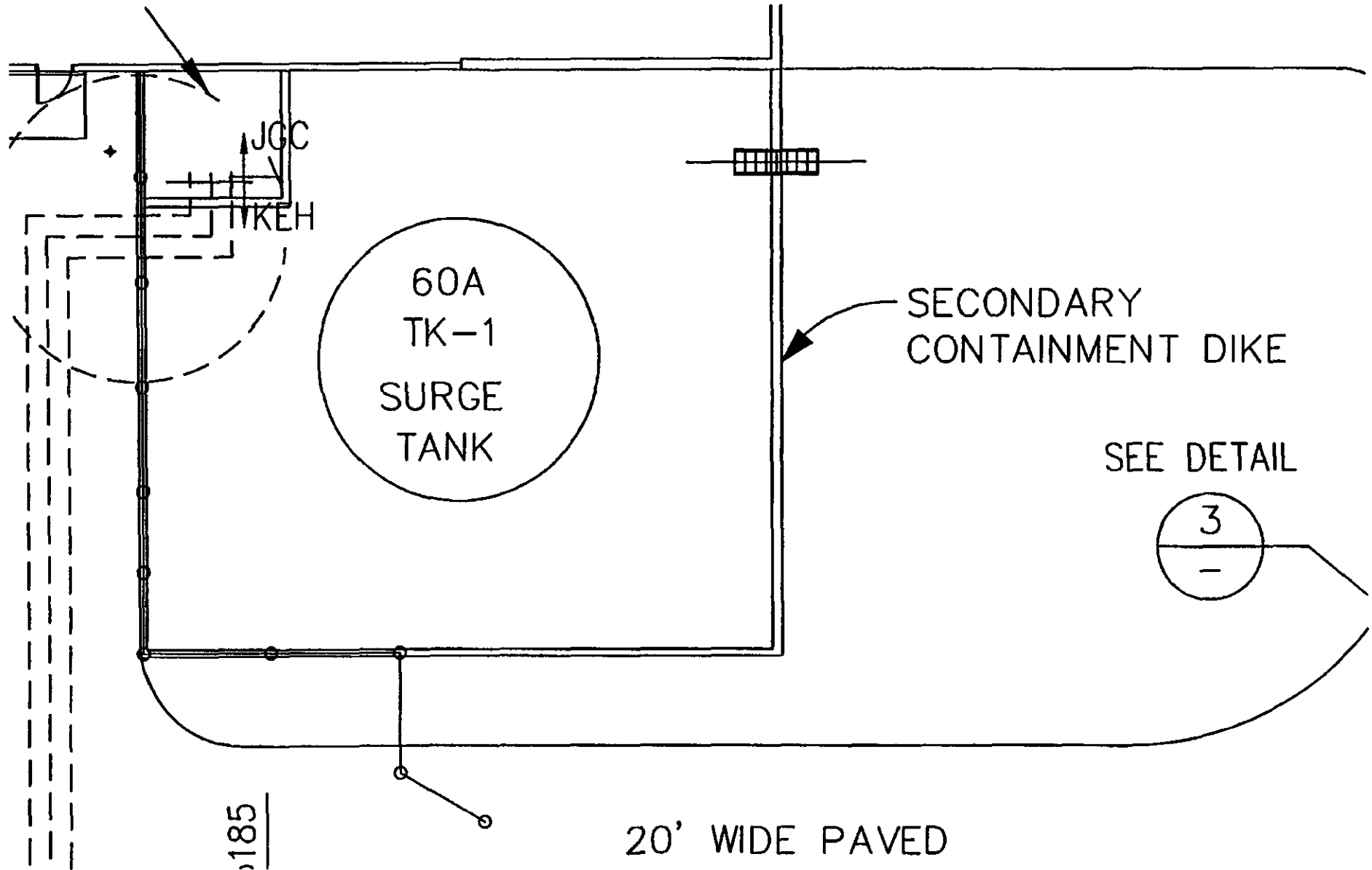


— C PIPE (-)4'-6"
BELOW GRADE

was

ECN 647892 PG 18 OF 27

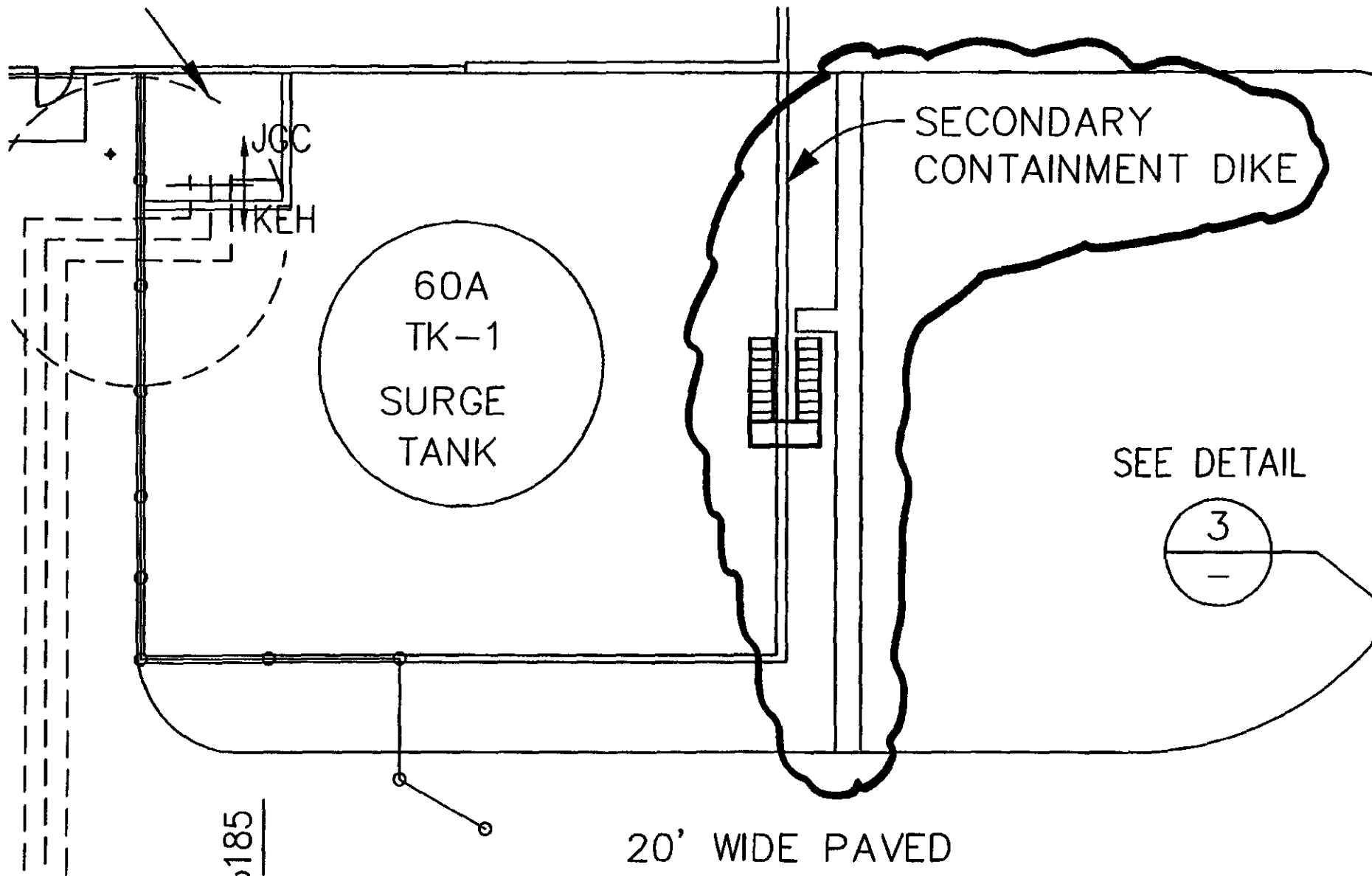
H 2-89014 SH 1



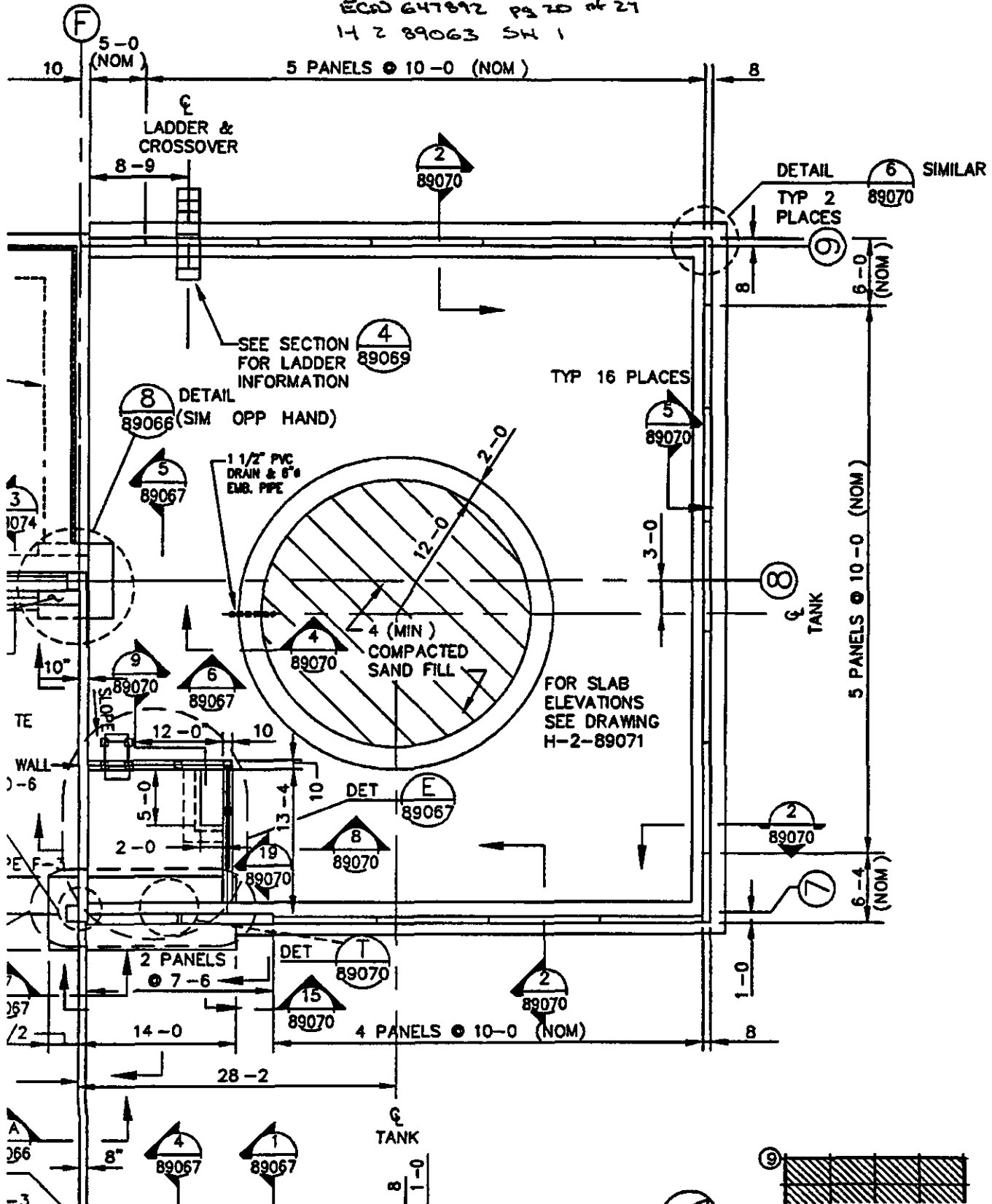
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EGS 647892 pg 19 of 27

H 2-89044 SH 1

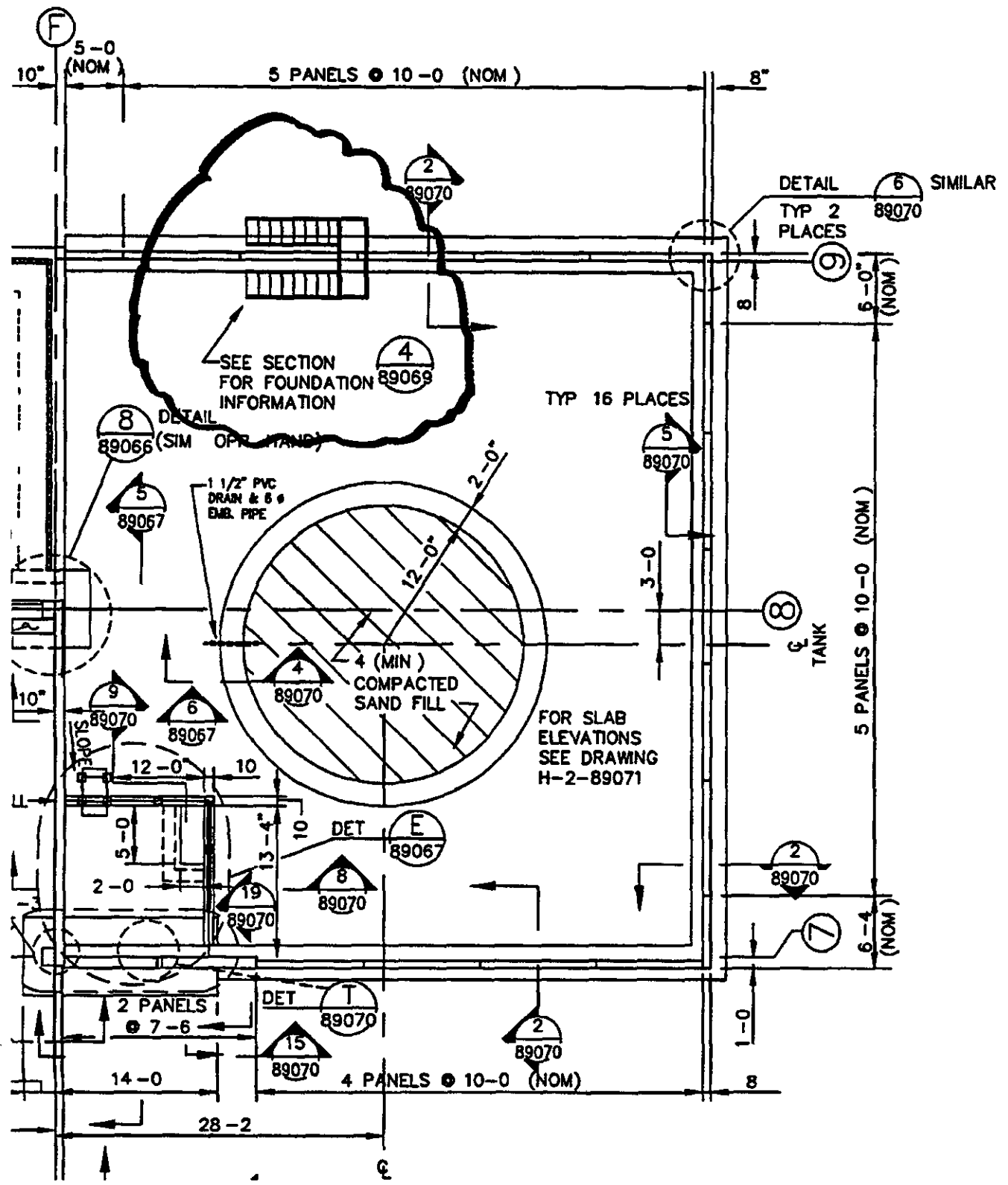


Was

ECN 647892 pg 20 of 27
14 2 89063 SH 1

Is
ECN 647892 PG 21 of 27
H 2 89063 SH 1

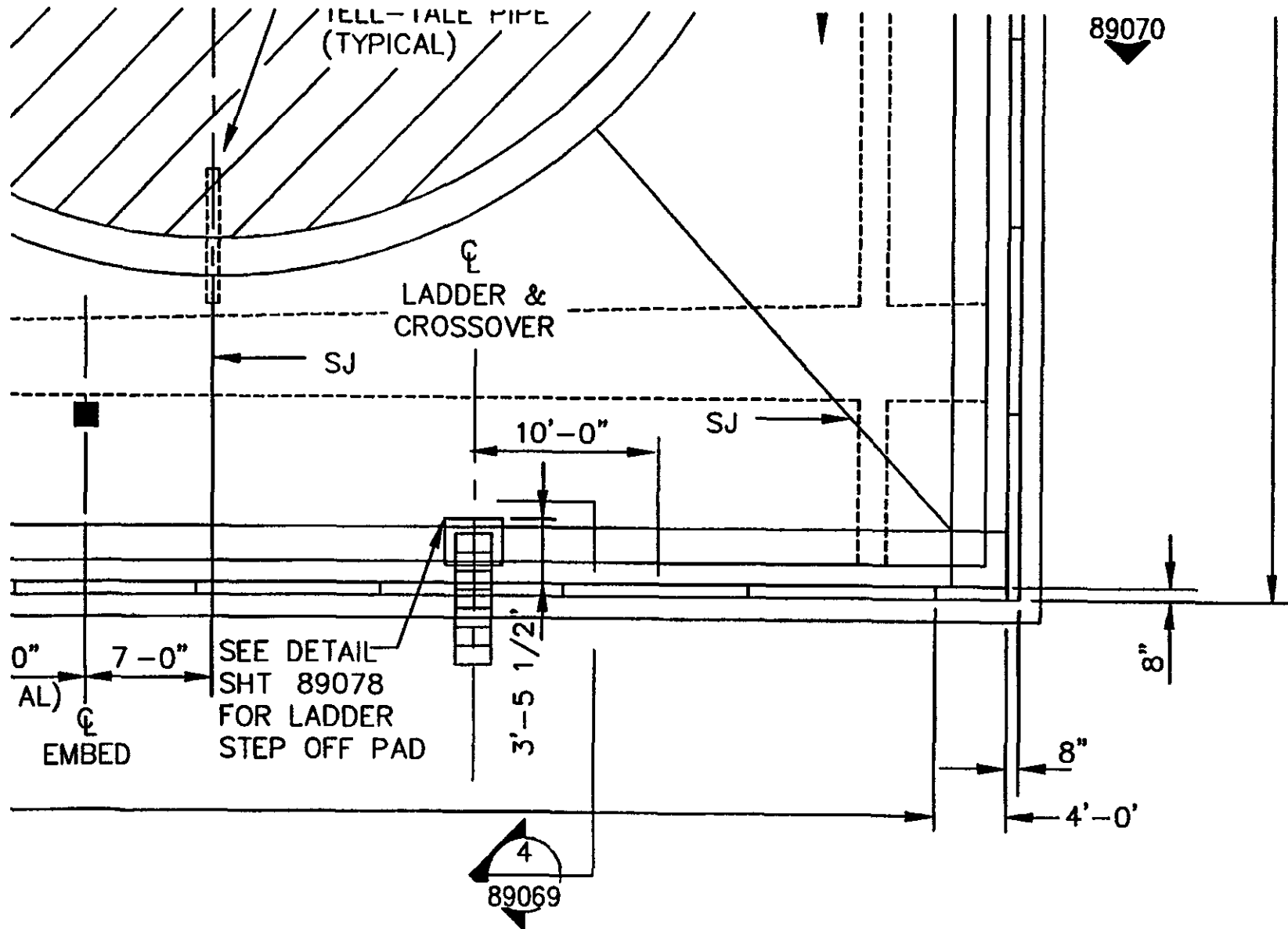
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WAS

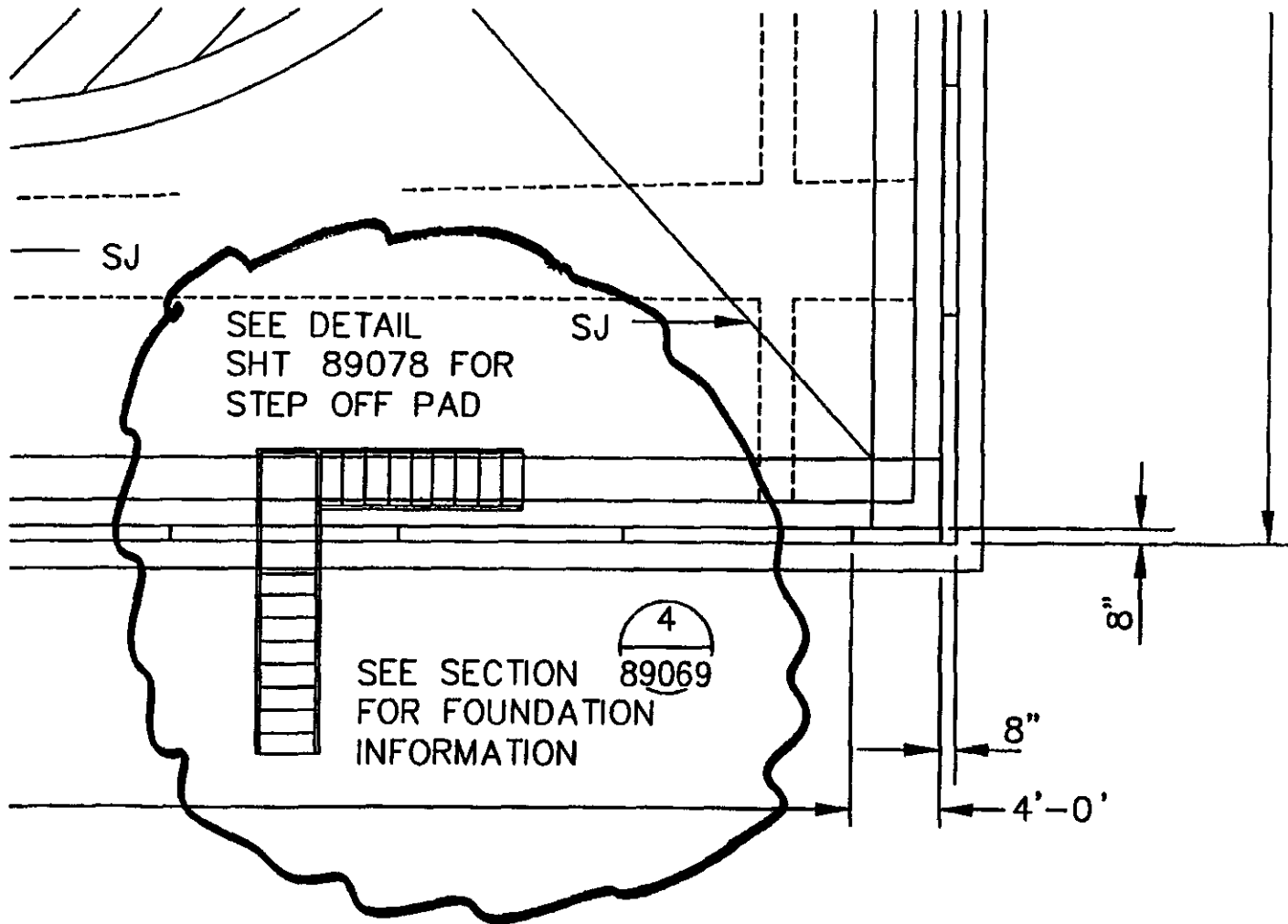
EGO 647892 PG 22 of 27

H-2-89068, SH 1



I

ECN 647892 pg 23 of 27
H 2-89068, SH 1

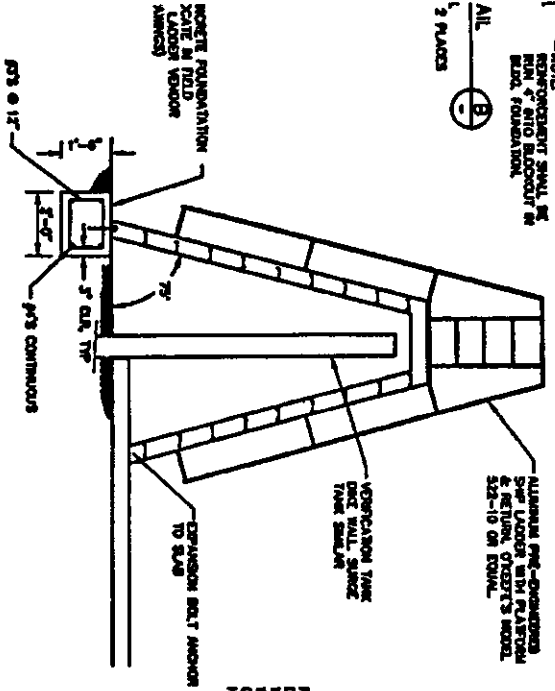


W-2

ECON 641892 PG 24 OF 27
H-2-89069 SH 1

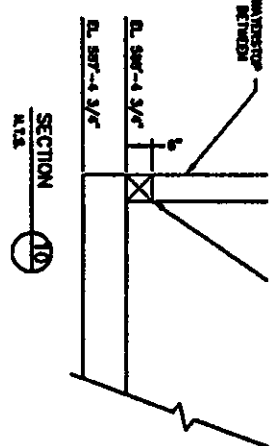
NOTE:
PROVIDE A 3" WIDE SETBACK
STUDS ALONG @ 3" C/C
REINFORCEMENT SHALL BE
RUN 4" INTO BLOCKOUT IN
BLOCK FOUNDATION.

ALL
2 PLACES



SECTION
SCALE
0 1' 2' 4' 8'

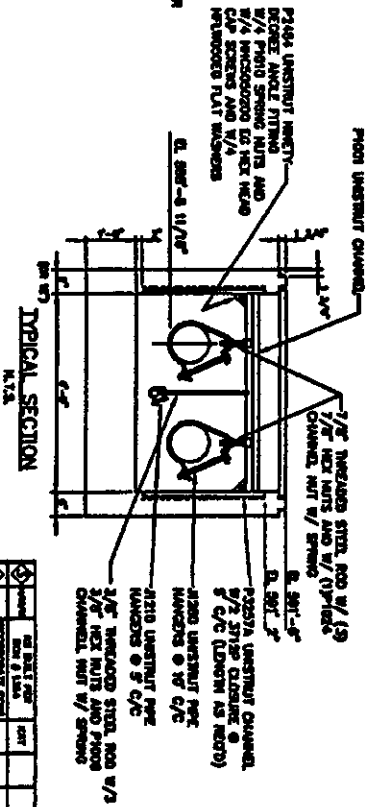
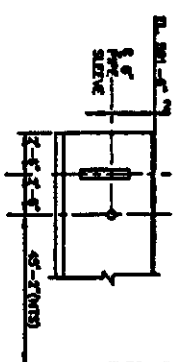
CONSTRUCTION JOINT W/ WINDSTOP
OR JOINT ALONG WINDSTOP
BUILDING AND TENSION



SECTION
N.T.S.

10

DETAIL
A



TYPICAL SECTION
N.T.S.

ITEM	DESCRIPTION	QUANTITY	UNIT
1	STEEL		
2	WOOD		
3	PAINT		
4	CONCRETE		
5	FOUNDATION		
6	ROOFING		
7	INSULATION		
8	GLASS		
9	DOORS		
10	WINDOWS		
11	STAIRS		
12	ELECTRICAL		
13	MECHANICAL		
14	PLUMBING		
15	HEATING		
16	Cooling		
17	Lighting		
18	Acoustical		
19	Fire Protection		
20	Security		
21	Signage		
22	Other		

NO.	DESCRIPTION	QUANTITY	UNIT
1	STEEL		
2	WOOD		
3	PAINT		
4	CONCRETE		
5	FOUNDATION		
6	ROOFING		
7	INSULATION		
8	GLASS		
9	DOORS		
10	WINDOWS		
11	STAIRS		
12	ELECTRICAL		
13	MECHANICAL		
14	PLUMBING		
15	HEATING		
16	Cooling		
17	Lighting		
18	Acoustical		
19	Fire Protection		
20	Security		
21	Signage		
22	Other		

U.S. DEPARTMENT OF ENERGY
NRC PROJECT, HANFORD
STRUCTURAL - SURGE TANK
MSC. ELEVATIONS

NO.	DESCRIPTION	QUANTITY	UNIT
1	STEEL		
2	WOOD		
3	PAINT		
4	CONCRETE		
5	FOUNDATION		
6	ROOFING		
7	INSULATION		
8	GLASS		
9	DOORS		
10	WINDOWS		
11	STAIRS		
12	ELECTRICAL		
13	MECHANICAL		
14	PLUMBING		
15	HEATING		
16	Cooling		
17	Lighting		
18	Acoustical		
19	Fire Protection		
20	Security		
21	Signage		
22	Other		

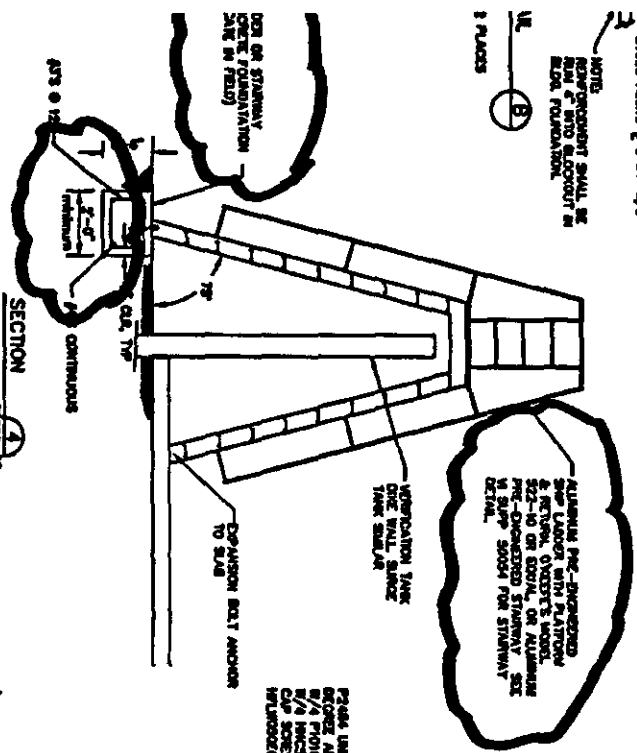
12

ECN 647892 PG 25 OF 21
H-2-89069 SH 1

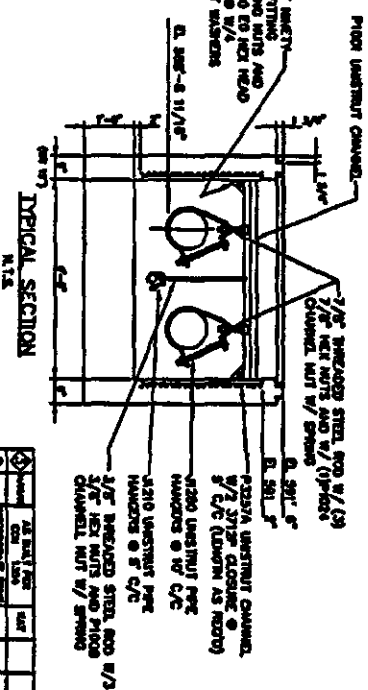
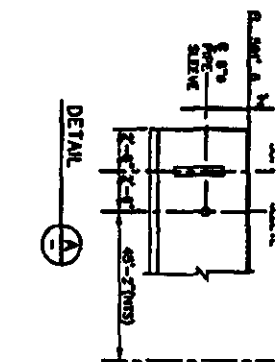
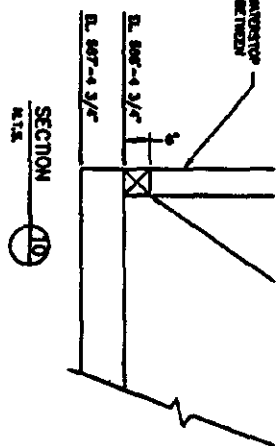
PROVIDE A 3/8" HOLE BETWEEN STUDS ALONG E @ 24" C/C

NOTE: REINFORCEMENT SHALL BE RUN C INTO BLOCKOUT IN BLDG. FOUNDATION.

2 PLACES



CONSTRUCTION JOINT W/ WINDSTOP OR JOINT ALONG BUTTRESS BETWEEN BLADING AND TOWER



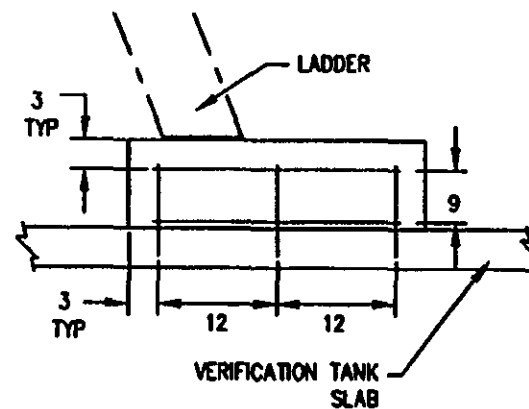
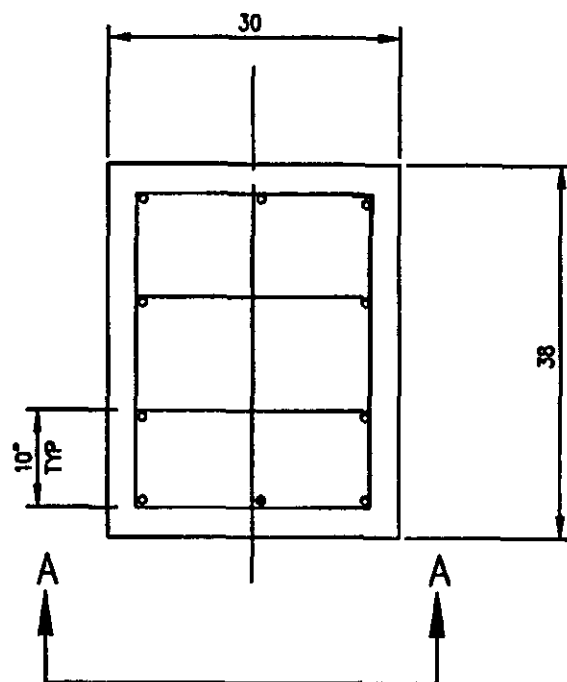
TYPICAL SECTION N.E.									
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STRUCTURAL - SURGE TANK
MISC. ELEVATIONS

H-2-89069 3

"Was"

ECN 647892 pg 26 of 27
14-2-89078 SH 1

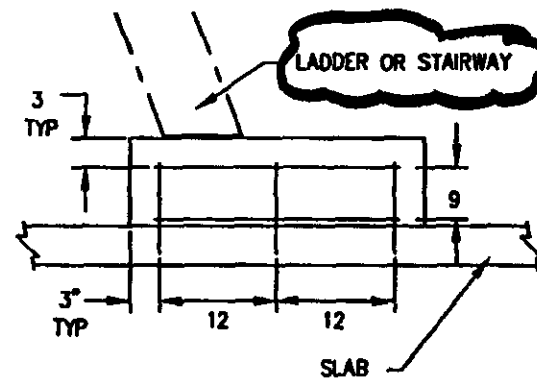
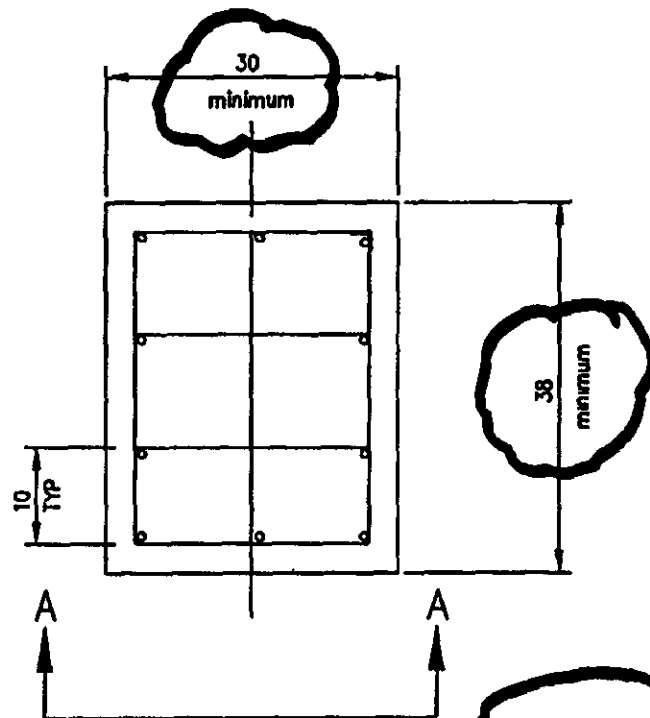


SHIP'S LADDER PLAN
VERIFICATION TANK

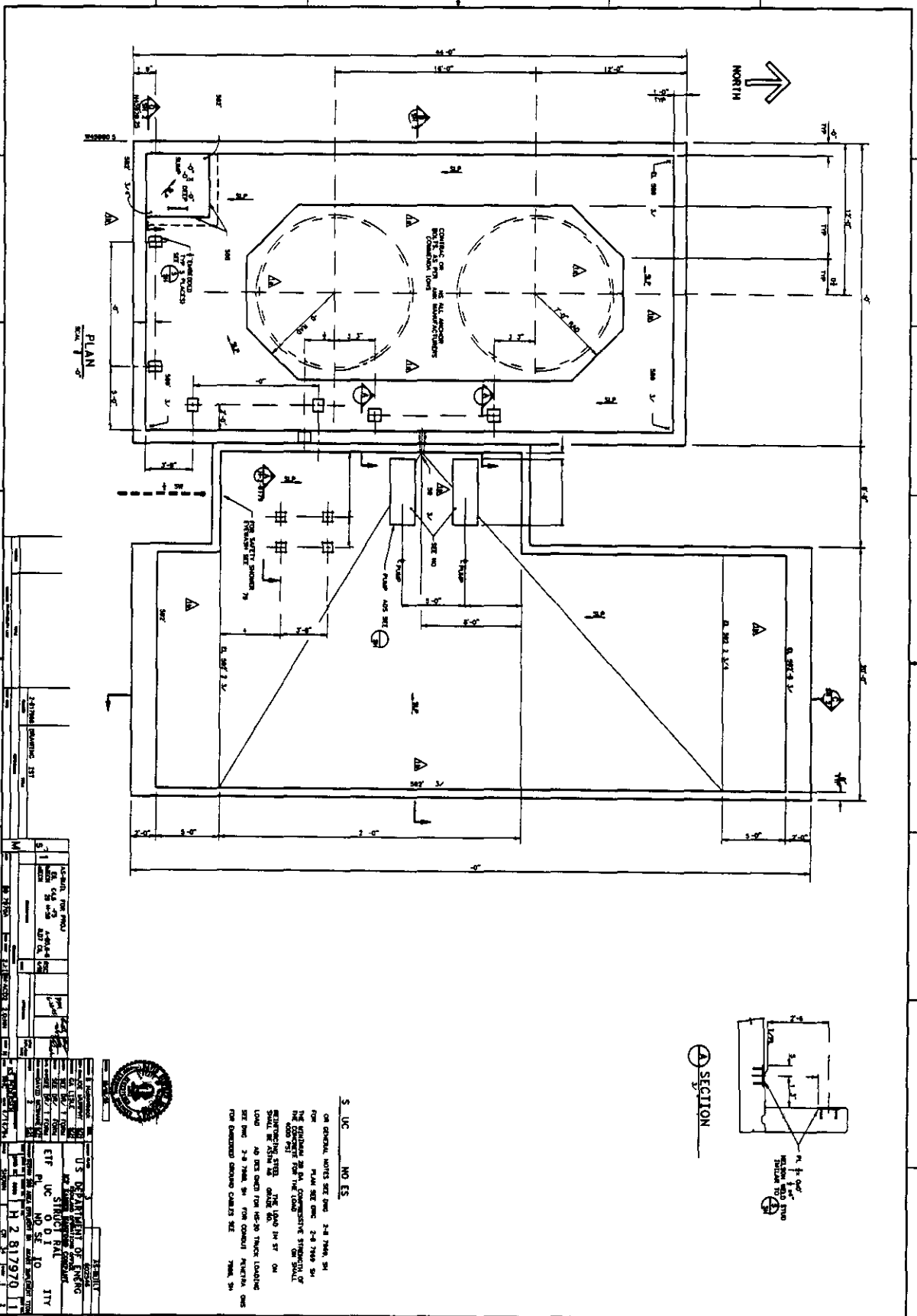
Is

ECN 647892 PG 27 OF 27
H-2-89078 SH 1

SCALE 0 2 4 8 12



LADDER OR STAIRWAY
STEP OFF PAD



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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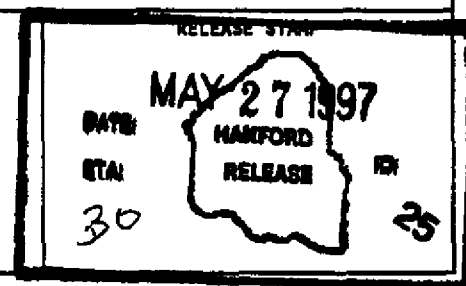


NO SCALE

1950-51

[illegible]

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;"> ENGINEERING CHANGE NOTICE <div style="margin-top: 10px;">CPF 18</div> </div> <div style="text-align: center; flex-grow: 1;"> <h1 style="margin: 0;">ESSENTIAL</h1> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> Page 1 of 24 </div> </div> <div style="text-align: right;"> <div style="display: flex; align-items: center;"> 1 ECN 641703 </div> <div style="margin-top: 5px;"> Proj ECN </div> </div> </div>																	
2 ECN Category (mark one) <div style="display: flex; flex-direction: column; gap: 5px;"> <div><input checked="" type="checkbox"/> Supplemental</div> <div><input type="checkbox"/> Direct Revision</div> <div><input type="checkbox"/> Change ECN</div> <div><input type="checkbox"/> Temporary</div> <div><input type="checkbox"/> Standby</div> <div><input type="checkbox"/> Supersede</div> <div><input type="checkbox"/> Cancel/Void</div> </div>	3 Originator's Name Organization MSIN and Telephone No RN Wagner/32200/S6 71/376 4460	4 USQ Required? <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div>	5 Date May 13 1997														
6 Project Title/No /Work Order No Misc Mods and As Builts for ETF Load In Station		7 Bldg /Sys /Fac No 2025E/59A 60M/ 200 Area ETF	8 Approval Designator NA														
9 Document Numbers Changed by this ECN (includes sheet no and rev) See Block 13A		10 Related ECN No(s) N/A	11 Related PO No NA														
12a Modification Work <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> No (NA Blks 12b 12c 12d) </div>	12b Work Package No EL 96 00208 EL 97 00343	12c Modification Work Complete <div style="border-top: 1px solid black; text-align: center; font-size: 0.8em;">Design Authority/Cog Engineer Signature & Date</div>	12d Restored to Original Condition (Temp or Standby ECN only) NA														
<div style="display: flex; justify-content: space-between;"> 13a Description of Change 13b Design Baseline Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No </div> <p>This ECN implements the following changes</p> <ul style="list-style-type: none"> Remove flow orifice in System 60M transfer line from Load In Station As build sample valve and tanker vent valving Add drain lines and valves to Load In Station pump cases Add bell reducer funnels and valving to suction of Load In Station pumps Replace Facility with Station in all Load In drawing titles Identify status of Load In Station drawings to Essential or Support <p>Piping fittings and jointing methods to meet the requirements of Hanford Site piping specification Class M 9 Install inspect and test the new piping installation in accordance with ASME B31 3 and Addenda for Category D fluid service</p> <p>(Block 13a continued on Page 3)</p>																	
14a Justification (mark one) <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> Criteria Change <input type="checkbox"/> As Found <input checked="" type="checkbox"/> </div> <div style="width: 50%;"> Design Improvement <input checked="" type="checkbox"/> Facilitate Const <input type="checkbox"/> </div> <div style="width: 50%;"> Environmental <input type="checkbox"/> Const Error/Omission <input type="checkbox"/> </div> <div style="width: 50%;"> Facility Deactivation <input type="checkbox"/> Design Error/Omission <input type="checkbox"/> </div> </div>																	
14b Justification Details Remove flow orifice in transfer line from Load In Station to increase flow rate As build sample valve and tanker vent valving for configuration control Add drain lines and valves to Load In Station pump cases for improved contamination control Add bell reducer funnels and valving to allow priming of Load In Station pumps Replace Facility with Station in drawing titles to reflect the status of the Load In Station as part of the 200 Area ETF rather than a stand alone facility Identify status of Load In Station drawings to Essential or Support as appropriate																	
15 Distribution (include name MSIN and no of copies) <table style="width: 100%; font-size: 0.8em;"> <tr> <td style="width: 30%;">M J Sullivan S6 72 1</td> <td style="width: 30%;">R J Nicklas S6 72 1</td> </tr> <tr> <td>J E Geary S6 71 2</td> <td>A K Yoakum S6 71 1</td> </tr> <tr> <td>R N Wagner* S6 71 2</td> <td>S P Biglin S6 74 1</td> </tr> <tr> <td>C M Towne S6 74 1</td> <td>E A McNamee* S6 74 1</td> </tr> <tr> <td>J L Vigue S6 74 1</td> <td>B S Darling S6 72 1</td> </tr> <tr> <td>J F Berger S6 74 1</td> <td>D P Nelsen S6 71 1</td> </tr> <tr> <td>T W Dallas S6 71 1</td> <td></td> </tr> </table> Stations 3/4/5/15/16/30 (* Advance Copies)				M J Sullivan S6 72 1	R J Nicklas S6 72 1	J E Geary S6 71 2	A K Yoakum S6 71 1	R N Wagner* S6 71 2	S P Biglin S6 74 1	C M Towne S6 74 1	E A McNamee* S6 74 1	J L Vigue S6 74 1	B S Darling S6 72 1	J F Berger S6 74 1	D P Nelsen S6 71 1	T W Dallas S6 71 1	
M J Sullivan S6 72 1	R J Nicklas S6 72 1																
J E Geary S6 71 2	A K Yoakum S6 71 1																
R N Wagner* S6 71 2	S P Biglin S6 74 1																
C M Towne S6 74 1	E A McNamee* S6 74 1																
J L Vigue S6 74 1	B S Darling S6 72 1																
J F Berger S6 74 1	D P Nelsen S6 71 1																
T W Dallas S6 71 1																	



641703

A 7900 013 3 (05/96) GEF096

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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ECN 641703

Date 5/13/97

Documents changed by this ECN (also see attached drawing changes)

H 2 88766 Sheet 4 Rev 2
H 2 88779 Sheet 4 Rev 0
H 9 203 Sheet 1 Rev 0
H 9 203 Sheet 4 Rev 0
H 2 817968 Sheet 1 Rev 1*
H 2 817969 Sheet 1 Rev 1*
H 2 817969 Sheet 2 Rev 1*
H 2 817969 Sheet 3 Rev 1*
H 2 817969 Sheet 4 Rev 1*
H 2 817969 Sheet 5 Rev 1*
H 2 817970 Sheet 1 Rev 1*
H 2 817970 Sheet 2 Rev 1*
H 2 817971 Sheet 1 Rev 1*
H 2 817971 Sheet 2 Rev 1*
H 2 817972 Sheet 1 Rev 1*
H 2 817973 Sheet 1 Rev 1*
H 2 817974 Sheet 1 Rev 2*
H 2 817975 Sheet 1 Rev 1*
H 2 817976 Sheet 1 Rev 1*
H 2 817977 Sheet 1 Rev 1*
H 2 817978 Sheet 1 Rev 1*
H 2 817980 Sheet 1 Rev 1*
H 2 817981 Sheet 1 Rev 1*
H 2 817981 Sheet 2 Rev 1*
H 2 817981 Sheet 3 Rev 1*
H 2 817981 Sheet 4 Rev 1*
H 2 817981 Sheet 5 Rev 1*
H 2 817983 Sheet 1 Rev 0*
H 2 817983 Sheet 2 Rev 1*
H 2 817983 Sheet 3 Rev 0*
H 2 817983 Sheet 4 Rev 1*
H 2 817983 Sheet 5 Rev 0*
H 2 817983 Sheet 6 Rev 1*
H 2 817983 Sheet 7 Rev 0*
H 2 817983 Sheet 8 Rev 0*
H 2 817985 Sheet 1 Rev 1*
H 2 817985 Sheet 2 Rev 1*
H 2 817987 Sheet 1 Rev 1*
H 2 817987 Sheet 3 Rev 1*
H 2 817987 Sheet 4 Rev 1*
H 2 817988 Sheet 1 Rev 1*
H 2 817988 Sheet 2 Rev 1*
H 2 817988 Sheet 3 Rev 1*
H 2 817989 Sheet 1 Rev 1*
H 2 817990 Sheet 1 Rev 1*
H 2 817991 Sheet 2 Rev 1*

(* Title and/or Essential/Support status is changed for these drawings per this ECN)

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

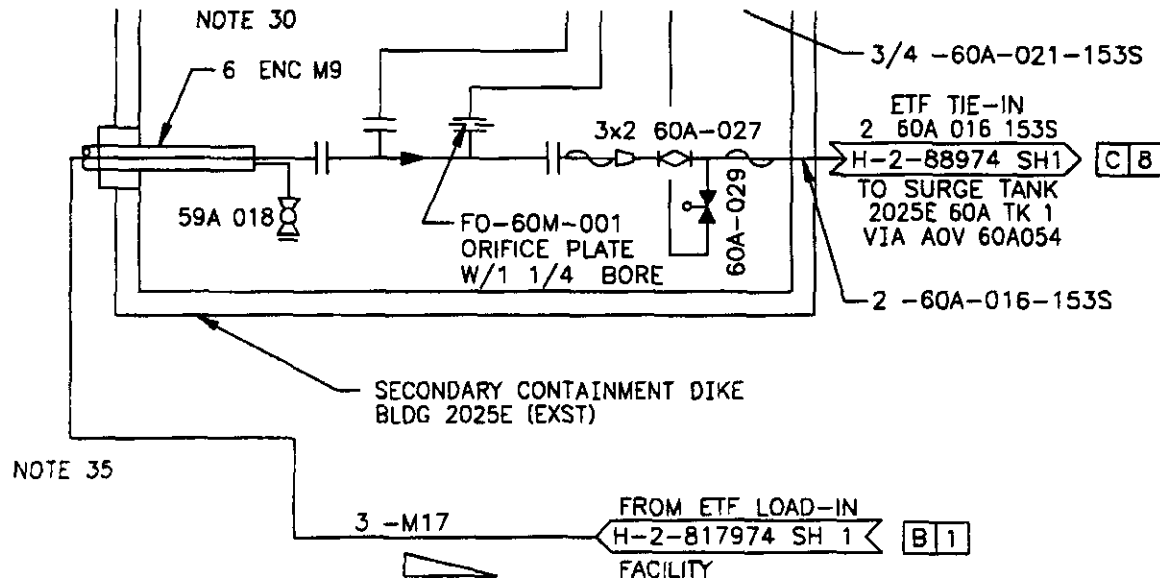
Page 4 of 24

ECN 641703

Date 5/13/97

H 2 88766, Sheet 4, Rev 2, Zone D 2

IS



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

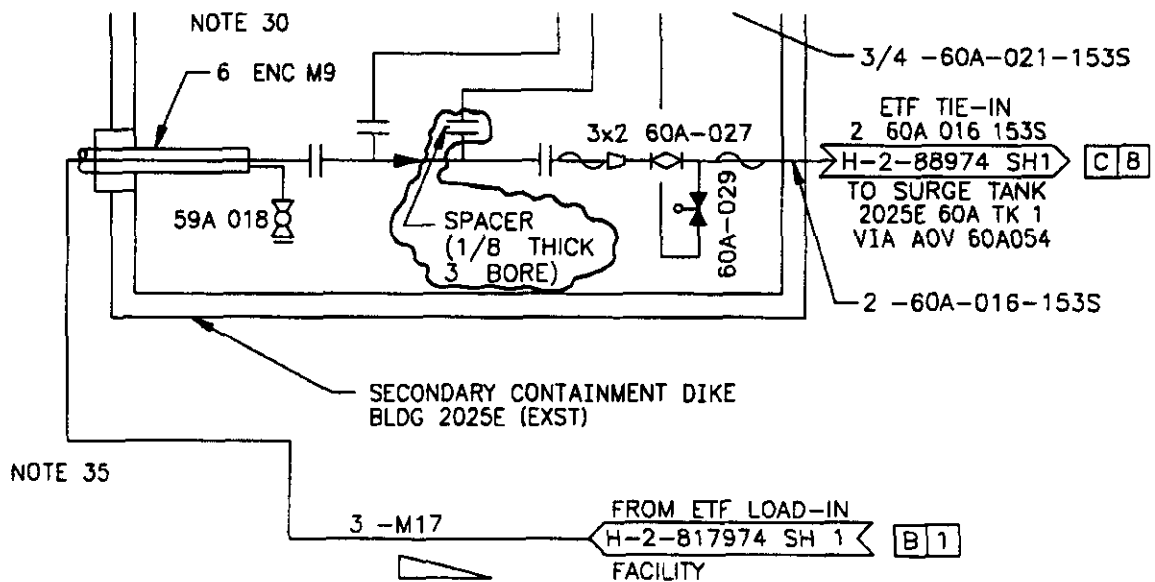
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Date 5/13/97

H 2 88766, Sheet 4, Rev. 2, Zone D 2

CHANGE TO



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

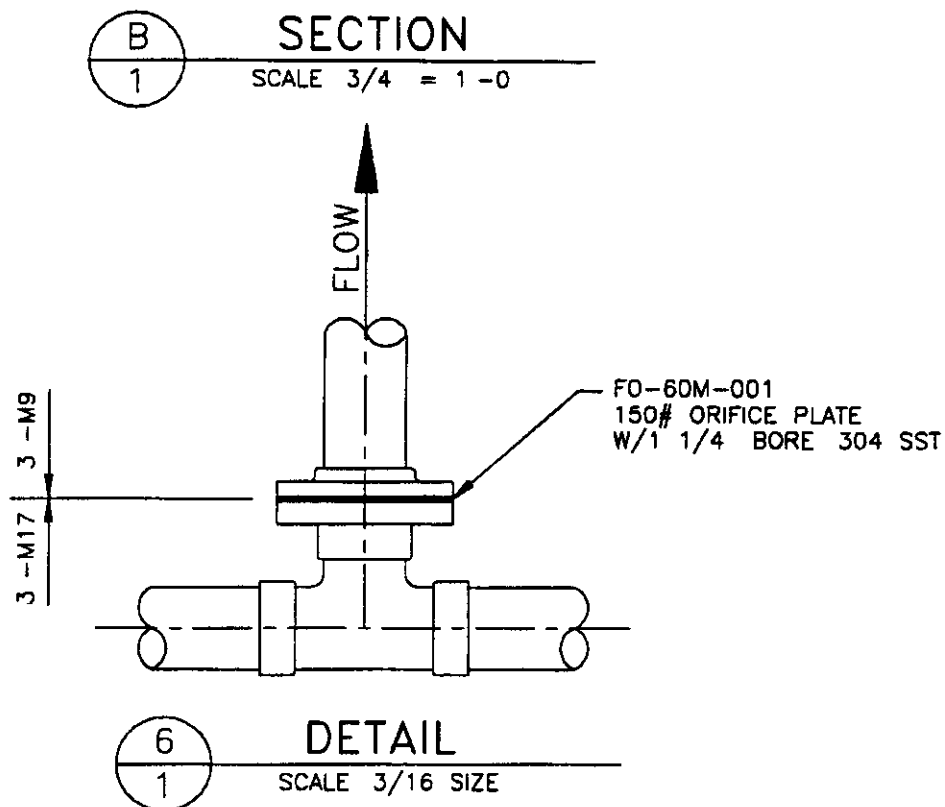
Page 6 of 24

ECN 641703

Date 5/13/97

H 2 88779. Sheet 4. Rev. 0. Zone B 2

IS



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

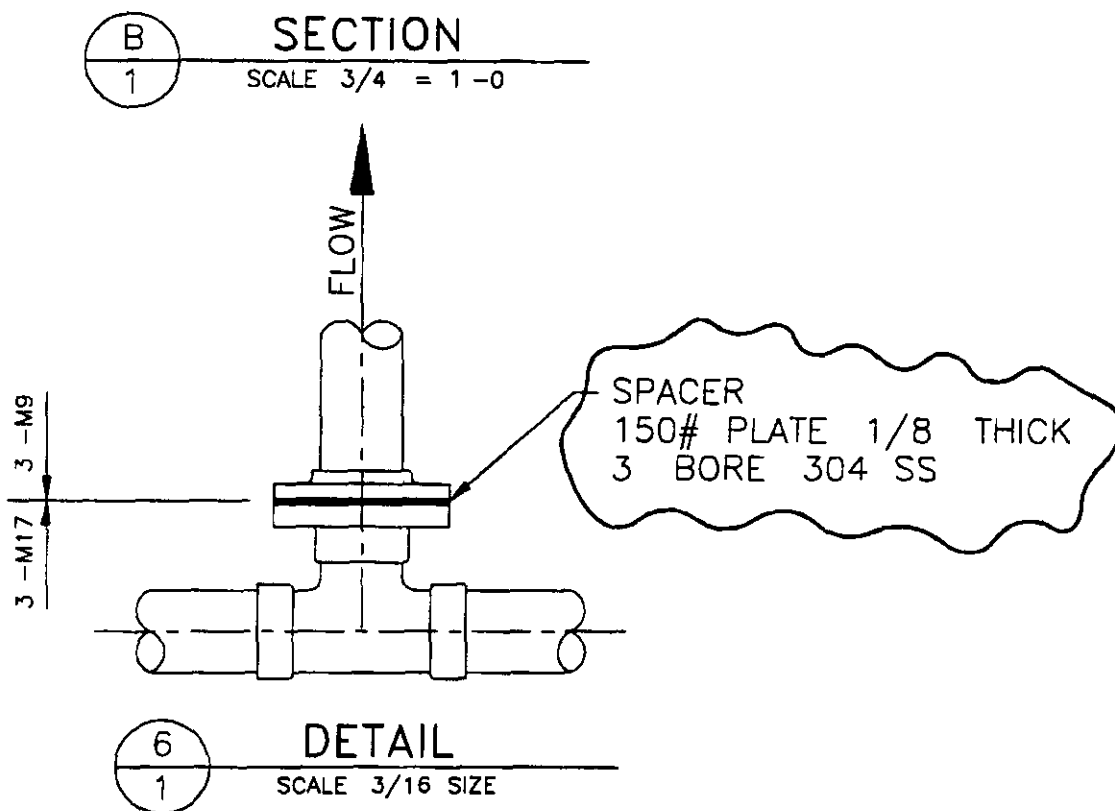
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ECN 641703

Date 5/13/97

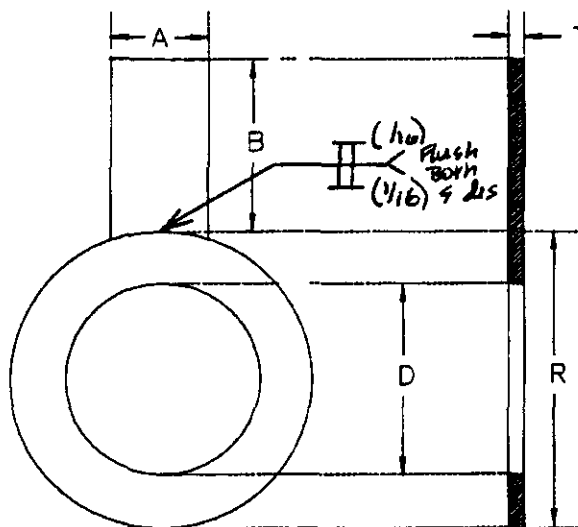
H 2 88779. Sheet 4. Rev. 0. Zone B 2

CHANGE TO



Sketch for 3 spacer shown in above changes to H 2 88779 and H 2 88766

3 FLANGE SPACER FOR ECN 641703



T = 1/8 PLATE THICKNESS

A = 2 (APPROX)
B = 3 (APPROX)

D = 3.00 +/- .05
R = 5.25 +/- .05

MATERIAL = 304SS
FLANGE CLASS = 150 LB

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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ECN 641703

Date 5/13/97

H 2 817974, Sheet 1, Rev. 2, Zone C 5

IS

3 PUMP DISCHARGE M9

59A-010

1/2 M9

SAMPLE

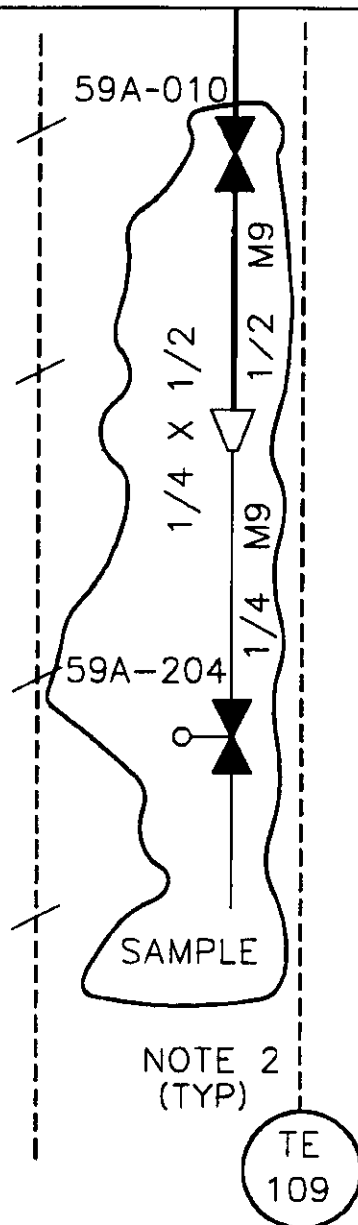
NOTE 2
(TYP)

TE
109

RTD

H 2 817974, Sheet 1, Rev. 2, Zone C 5**CHANGE TO**

3" PUMP DISCHARGE M9



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

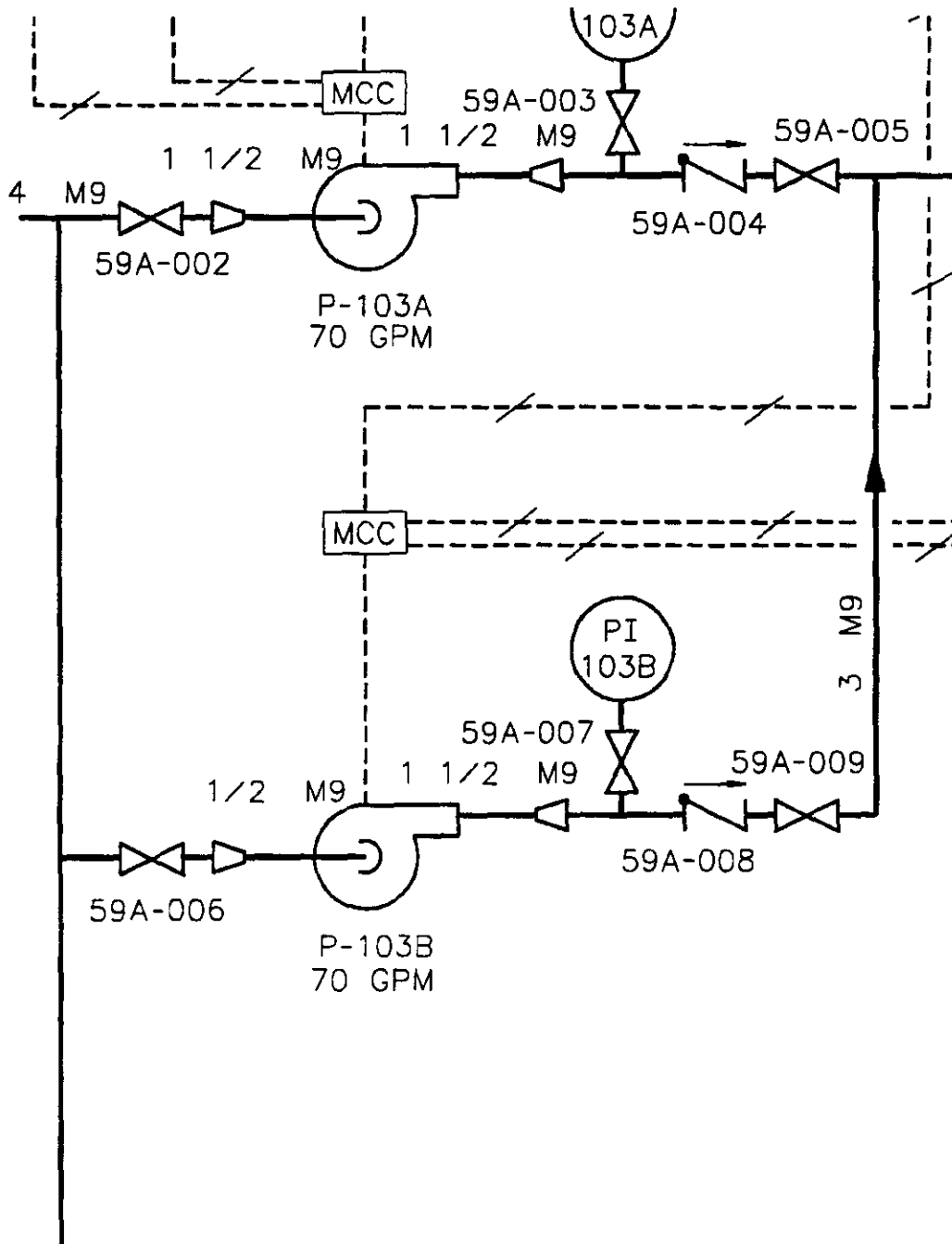
Page 11 of 24

ECN 641703

Date 5/13/97

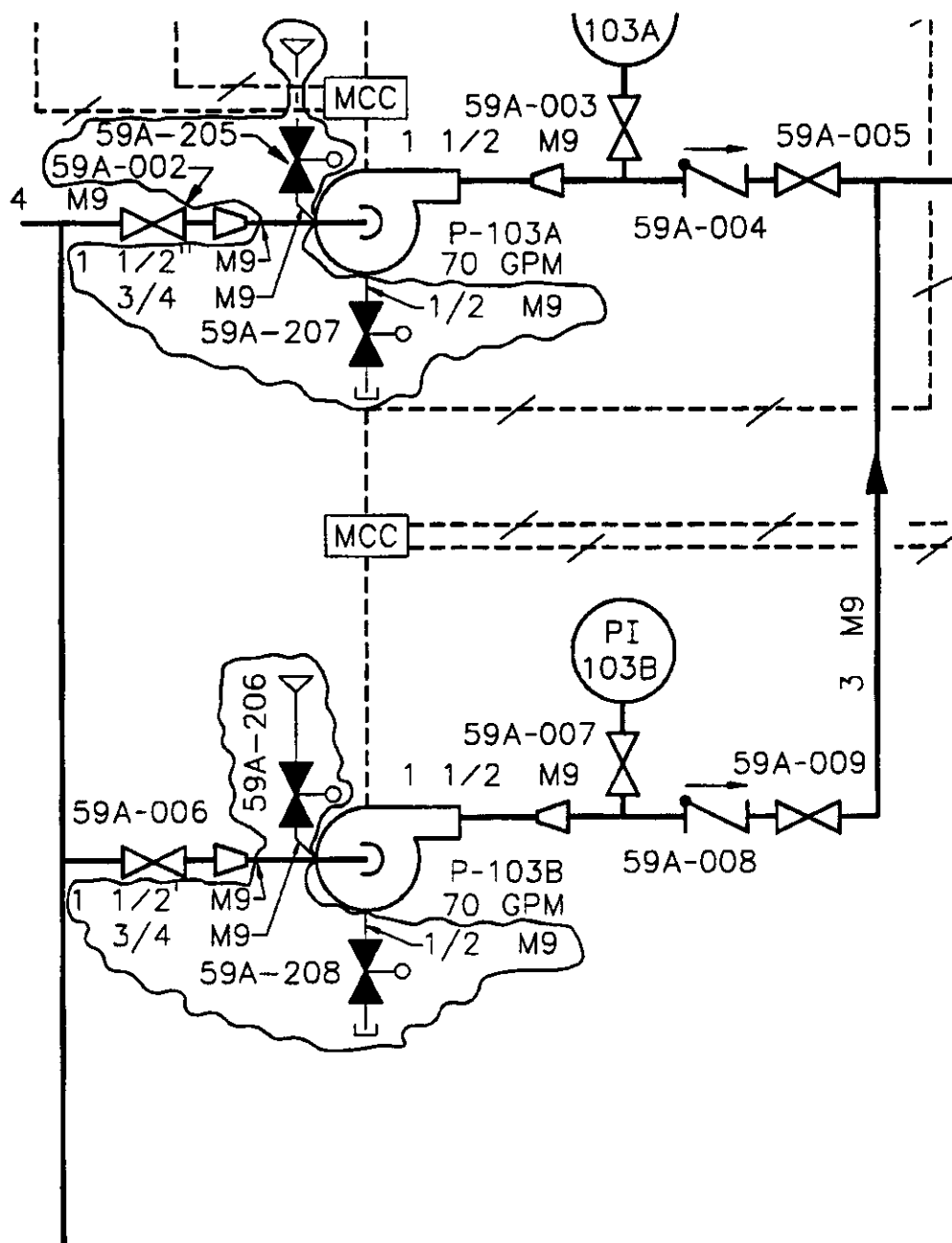
H 2 817974, Sheet 1, Rev. 2, Zone C 7 to D 7

IS



H 2 817974, Sheet 1, Rev. 2, Zone C 7 to D 7

CHANGE TO



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

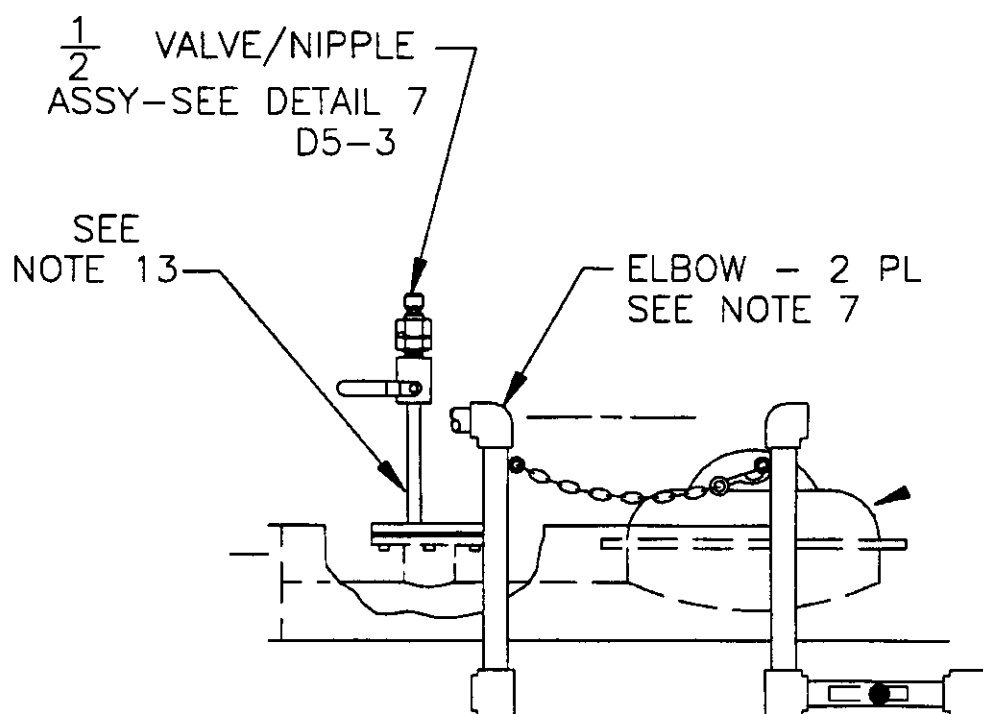
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Date 5/13/97

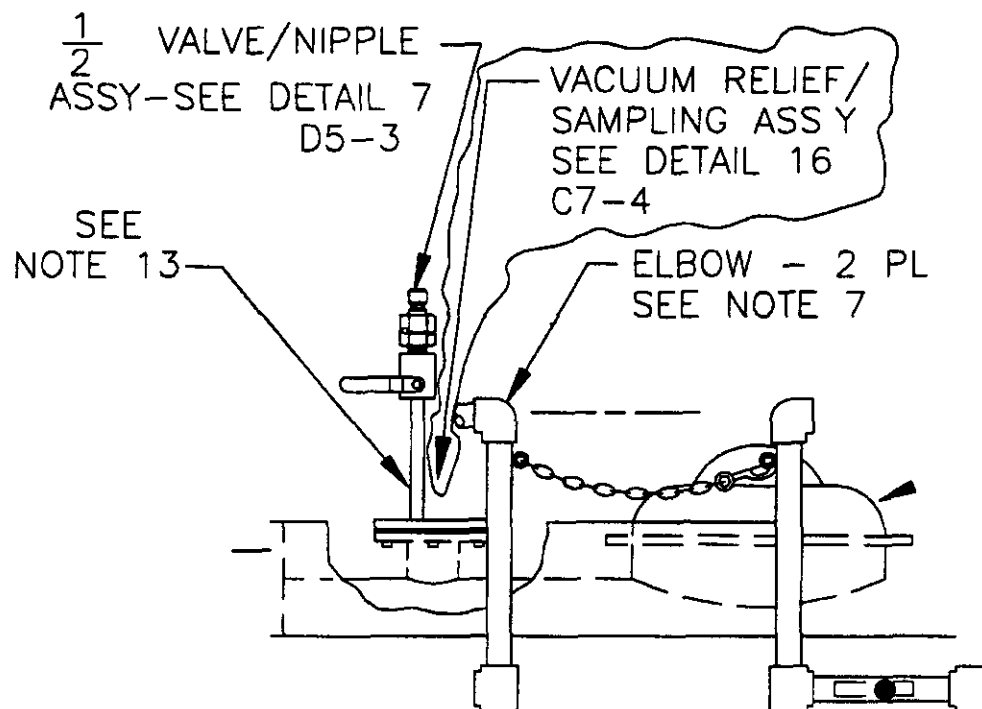
H 9 203, Sheet 1, Rev. 0, Zone E 6

IS



H 9 203. Sheet 1. Rev. 0. Zone E 6

CHANGE TO



ENGINEERING CHANGE NOTICE CONTINUATION SHEET

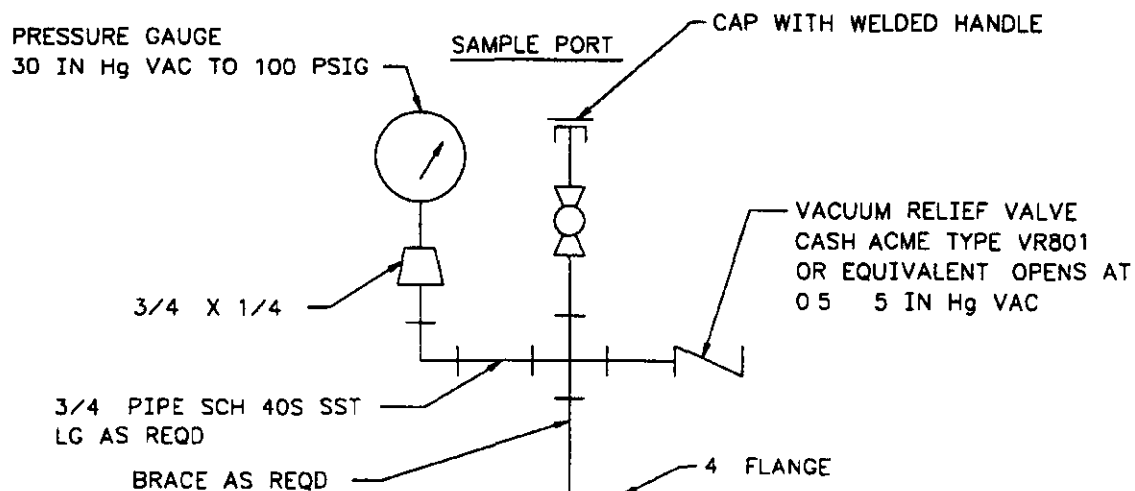
Page 15 of 24

ECN 641703

Date 5/13/97

H 9 203, Sheet 4, Rev 0, Zone D 7

IS

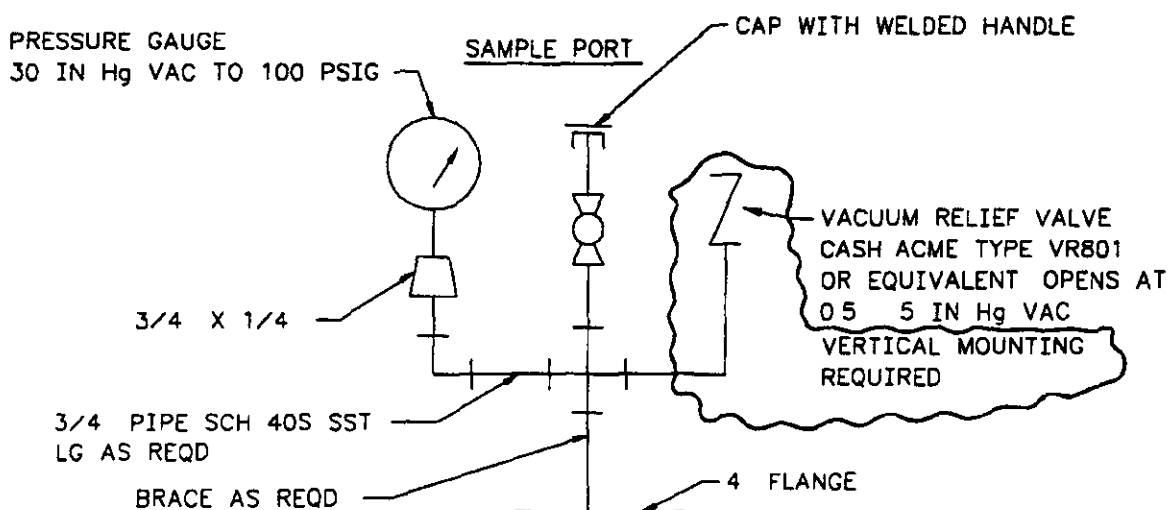


DETAIL 16 C6-2

SCALE NONE

H 9 203, Sheet 4, Rev. 0, Zone D 7

CHANGE TO



DETAIL 16

C6-2

E6 1

SCALE NONE

ENGINEERING CHANGE NOTICE CONTINUATION SHEETPage 17 of 24

ECN 641703

Date 5/13/97

H 2 817968. Sheet 1. Rev 1. Title**IS** ETF TRUCK LOAD IN FACILITY LOCATION PLAN & DWG LIST**CHANGE TO** ETF TRUCK LOAD IN STATION LOCATION PLAN & DWG LISTDrawing Status **ESSENTIAL**H 2 817969. Sheet 1. Rev. 1. Title**IS** CIVIL ETF TRUCK LOAD IN FACILITY SITE PLAN**CHANGE TO** CIVIL ETF TRUCK LOAD IN STATION SITE PLANDrawing Status **SUPPORT**H 2 817969. Sheet 2. Rev. 1. Title**IS** CIVIL ETF TRUCK LOAD IN FACILITY PLAN AND PROFILES**CHANGE TO** CIVIL ETF TRUCK LOAD IN STATION PLAN AND PROFILESDrawing Status **SUPPORT**H 2 817969. Sheet 3. Rev. 1. Title**IS** CIVIL ETF TRUCK LOAD IN FACILITY ENLARGED PLAN**CHANGE TO** CIVIL ETF TRUCK LOAD IN STATION ENLARGED PLANDrawing Status **SUPPORT**H 2 817969. Sheet 4. Rev 1. Title**IS** CIVIL ETF TRUCK LOAD IN FACILITY MISCELLANEOUS DETAILS**CHANGE TO** CIVIL ETF TRUCK LOAD IN STATION MISCELLANEOUS DETAILSDrawing Status **SUPPORT**

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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ECN 641703

Date 5/13/97

H 2 817969, Sheet 5, Rev. 1, Title**IS** CIVIL ETF TRUCK LOAD IN FACILITY MISCELLANEOUS DETAILS**CHANGE TO** CIVIL ETF TRUCK LOAD IN STATION MISCELLANEOUS DETAILS

Drawing Status SUPPORT

H 2 817970, Sheet 1, Rev. 1, Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY PLAN AND SECTIONS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION PLAN AND SECTIONS

Drawing Status SUPPORT

H 2 817970, Sheet 2, Rev. 1, Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY SECTIONS AND DETAILS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION SECTIONS AND DETAILS

Drawing Status SUPPORT

H 2 817971, Sheet 1, Rev. 1, Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY STEEL PLAN & SECTIONS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION STEEL PLAN & SECTIONS

Drawing Status SUPPORT

H 2 817971, Sheet 2, Rev. 1, Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY STEEL DETAILS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION STEEL DETAILS

Drawing Status SUPPORT

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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Date 5/13/97

H 2 817972. Sheet 1. Rev. 1. Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY SECTIONS AND DETAILS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION SECTIONS AND DETAILS

Drawing Status SUPPORT

H 2 817973. Sheet 1. Rev 1. Title**IS** STRUCTURAL ETF TRUCK LOAD IN FACILITY MISC SECTIONS AND DETAILS**CHANGE TO** STRUCTURAL ETF TRUCK LOAD IN STATION MISC SECTIONS AND DETAILS

Drawing Status SUPPORT

H 2 817974. Sheet 1. Rev 2. Title**IS** P & ID ETF TRUCK LOAD IN FACILITY**CHANGE TO** P & ID ETF TRUCK LOAD IN STATION

Drawing Status ESSENTIAL

H 2 817975. Sheet 1. Rev. 1. Title**IS** PIPING ETF TRUCK LOAD IN FACILITY PLAN**CHANGE TO** PIPING ETF TRUCK LOAD IN STATION PLAN

Drawing Status ESSENTIAL

H 2 817976. Sheet 1. Rev 1. Title**IS** PIPING ETF TRUCK LOAD IN FACILITY SECTIONS AND DETAILS**CHANGE TO** PIPING ETF TRUCK LOAD IN STATION SECTIONS AND DETAILS

Drawing Status SUPPORT

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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Date 5/13/97

H 2 817977. Sheet 1. Rev. 1. Title**IS** PIPING ETF TRUCK LOAD IN FACILITY DETAILS**CHANGE TO** PIPING ETF TRUCK LOAD IN STATION DETAILS

Drawing Status SUPPORT

H 2 817978. Sheet 1. Rev. 1. Title**IS** PIPING ETF TRUCK LOAD IN FACILITY PIPE SUPPORTS**CHANGE TO** PIPING ETF TRUCK LOAD IN STATION PIPE SUPPORTS

Drawing Status SUPPORT

H 2 817980. Sheet 1. Rev. 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LEGEND & SYMBOLS**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LEGEND & SYMBOLS

Drawing Status SUPPORT

H 2 817981. Sheet 1. Rev 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LOOP DIAGRAM**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LOOP DIAGRAM

Drawing Status SUPPORT

H 2 817981. Sheet 2. Rev. 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LOOP DIAGRAM**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LOOP DIAGRAM

Drawing Status SUPPORT

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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ECN 641703

Date 5/13/97

H 2 817981. Sheet 3. Rev. 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LOOP DIAGRAM**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LOOP DIAGRAM

Drawing Status SUPPORT

H 2 817981. Sheet 4. Rev. 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LOOP DIAGRAM**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LOOP DIAGRAM

Drawing Status SUPPORT

H 2 817981. Sheet 5. Rev. 1. Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY LOOP DIAGRAM**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION LOOP DIAGRAM

Drawing Status SUPPORT

H 2 817983. Sheet 1. Rev. 0. Title**CHANGE TO** Drawing Status SUPPORTH 2 817983. Sheet 2. Rev 1. Title**CHANGE TO** Drawing Status SUPPORTH 2 817983. Sheet 3. Rev. 0. Title**CHANGE TO** Drawing Status SUPPORTH 2 817983. Sheet 4. Rev 1. Title**CHANGE TO** Drawing Status SUPPORTH 2 817983. Sheet 5. Rev 0. Title**CHANGE TO** Drawing Status SUPPORT

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H 2 817983, Sheet 6, Rev. 1, Title**CHANGE TO** Drawing Status SUPPORTH 2 817983, Sheet 7, Rev. 0, Title**CHANGE TO** Drawing Status SUPPORTH 2 817983, Sheet 8, Rev. 0, Title**CHANGE TO** Drawing Status SUPPORTH 2 817985, Sheet 1, Rev. 1, Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY SECTIONS AND DETAILS**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION SECTIONS AND DETAILS

Drawing Status SUPPORT

H 2 817985, Sheet 2, Rev. 1, Title**IS** INSTRUMENTATION ETF TRUCK LOAD IN FACILITY SECTIONS AND DETAILS**CHANGE TO** INSTRUMENTATION ETF TRUCK LOAD IN STATION SECTIONS AND DETAILS

Drawing Status SUPPORT

H 2 817987, Sheet 1, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY SITE PLAN**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION SITE PLAN

Drawing Status SUPPORT

H 2 817987, Sheet 3, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY SECTIONS & DETAILS**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION SECTIONS & DETAILS

Drawing Status SUPPORT

ENGINEERING CHANGE NOTICE CONTINUATION SHEETPage 23 of 24

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Date 5/13/97

H 2 817987, Sheet 4, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY SECTIONS & DETAILS**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION SECTIONS & DETAILS

Drawing Status SUPPORT

H 2 817988, Sheet 1, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY PLAN ONE LINE & DETAILS**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION PLAN ONE LINE & DETAILS

Drawing Status ESSENTIAL

H 2 817988, Sheet 2, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY PLAN GND & HEAT TRACING**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION PLAN GND & HEAT TRACING

Drawing Status ESSENTIAL

H 2 817988, Sheet 3, Rev. 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY PANEL SCHEDULE & DETAILS**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION PANEL SCHEDULE & DETAILS

Drawing Status ESSENTIAL

H 2 817989, Sheet 1, Rev 1, Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY ELEMENTARY DIAGRAM**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION ELEMENTARY DIAGRAM

Drawing Status ESSENTIAL

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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Date 5/13/97

H 2 817990. Sheet 1. Rev. 1. Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY WIRE & CONDUIT SCHEDULE**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION WIRE & CONDUIT SCHEDULE

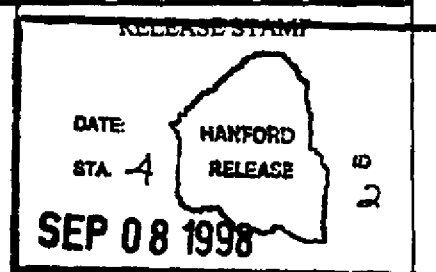
Drawing Status ESSENTIAL

H 2 817991. Sheet 2. Rev 1. Title**IS** ELECTRICAL ETF TRUCK LOAD IN FACILITY TELECOMMUNICATIONS**CHANGE TO** ELECTRICAL ETF TRUCK LOAD IN STATION TELECOMMUNICATIONS

Drawing Status SUPPORT

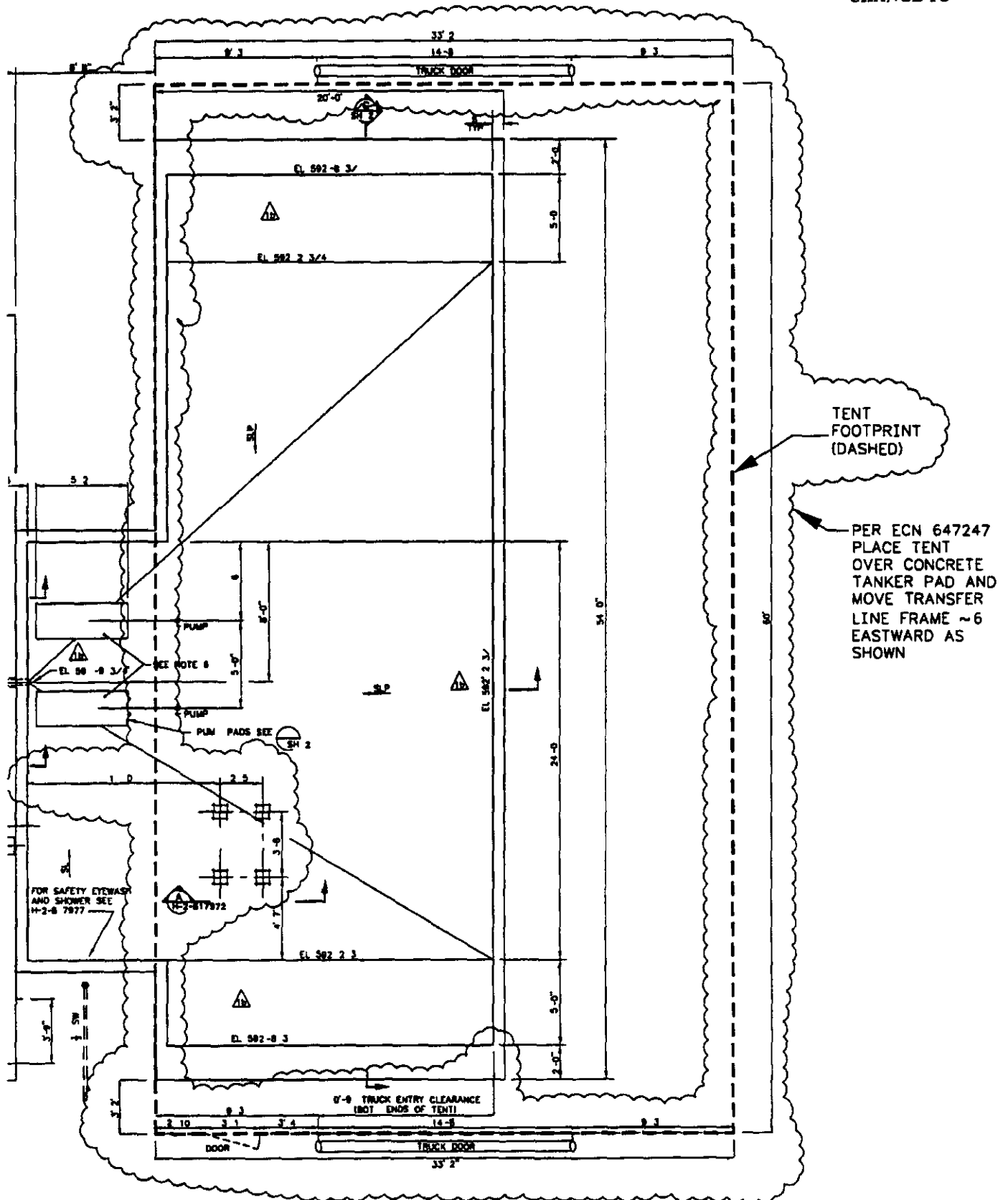
ESSENTIAL**S****ENGINEERING CHANGE NOTICE**Page 1 of 101 ECN **647247**Proj.
ECN

2 ECN Category (mark one) Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersede <input type="checkbox"/> Cancel/Void <input type="checkbox"/>		3 Originator's Name Organization MSIN and Telephone No RN Wagner/32230/S6 72/376-4460		4 USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		5 Date August 27 1998													
		6 Project Title/No /Work Order No Install Tent Over ETF Load In Station/A4055		7 Bldg./Sys./Fac No 2025EC/59A/ 200 Area ETF		8 Approval Designator NA													
		9 Document Numbers Changed by this ECN (includes sheet no and rev) See Block 13		10 Related ECN No(s) NA		11 Related PO No NA													
12a. Modification Work <input checked="" type="checkbox"/> Yes (fill out Blk 12b) <input type="checkbox"/> No (NA Blks 12b 12c 12d)		12b Work Package No EL-97-00853		12c Modification Work Complete Design Authority/Cog. Engineer Signature & Date		12d Restored to Original Condition (Temp or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date													
13a. Description of Change 13b Design Baseline Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No This ECN installs a tent over the ETF Load In Station to provide shelter during inclement weather Mechanical modifications to the Load In Station necessary to accommodate the tent placement are covered in this ECN Drawings affected are <ul style="list-style-type: none">• H 2 817970 Sheet 1 Rev 1• H 2 817972 Sheet 1 Rev 1✓ H 2 817975 Sheet 1 Rev 5H 2 817976 Sheet 1 Rev 1 Concrete anchor bolts for relocation of the Load In transfer line support frame shall be Hilti P/N 0045407 Description Code KB II SS 58 812 Ext Trd or Engineering approved equivalent Piping fittings and jointing methods shall meet the requirements of Piping Specification Class M 9 Install inspect, and test the new piping installation in accordance with ASME B31 3 and Addenda for Category D fluid service (Block 13a continued on Page 3)																			
14a. Justification (mark one) <table><tr><td>Criteria Change <input type="checkbox"/></td><td>Design Improvement <input checked="" type="checkbox"/></td><td>Environmental <input type="checkbox"/></td><td>Facility Deactivation <input type="checkbox"/></td></tr><tr><td>As-Found <input type="checkbox"/></td><td>Facilitate Const <input type="checkbox"/></td><td>Const Error/Omission <input type="checkbox"/></td><td>Design Error/Omission <input type="checkbox"/></td></tr></table>								Criteria Change <input type="checkbox"/>	Design Improvement <input checked="" type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>	As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>				
Criteria Change <input type="checkbox"/>	Design Improvement <input checked="" type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>																
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>																
14b Justification Details The tent will provide shelter to ensure operator safety and allow continuity of operations during inclement weather																			
15 Distribution (include name MSIN and no of copies) <table><tr><td>N J S Ilivan S6-72 1</td><td>J E Geary S6-71 1</td></tr><tr><td>A K Yoakum S6-71 1</td><td>E A McNamar S6-72 1</td></tr><tr><td>R N Wagner* S6-72 2</td><td>M W Bowman S6-72 1</td></tr><tr><td>WCC Planning S6-71 1</td><td>T W Dallas S6-74 1</td></tr><tr><td>L L Lin S6-72 1</td><td>D L Tubbs S6-74 1</td></tr><tr><td>D L Flyckt S6-71 1</td><td>C M Town S6-74 1</td></tr></table> <p>(= 1 Advance Copy)</p> <p>IPF 7 S6 72 1 IPF 4 - H6-26 1</p>								N J S Ilivan S6-72 1	J E Geary S6-71 1	A K Yoakum S6-71 1	E A McNamar S6-72 1	R N Wagner* S6-72 2	M W Bowman S6-72 1	WCC Planning S6-71 1	T W Dallas S6-74 1	L L Lin S6-72 1	D L Tubbs S6-74 1	D L Flyckt S6-71 1	C M Town S6-74 1
N J S Ilivan S6-72 1	J E Geary S6-71 1																		
A K Yoakum S6-71 1	E A McNamar S6-72 1																		
R N Wagner* S6-72 2	M W Bowman S6-72 1																		
WCC Planning S6-71 1	T W Dallas S6-74 1																		
L L Lin S6-72 1	D L Tubbs S6-74 1																		
D L Flyckt S6-71 1	C M Town S6-74 1																		

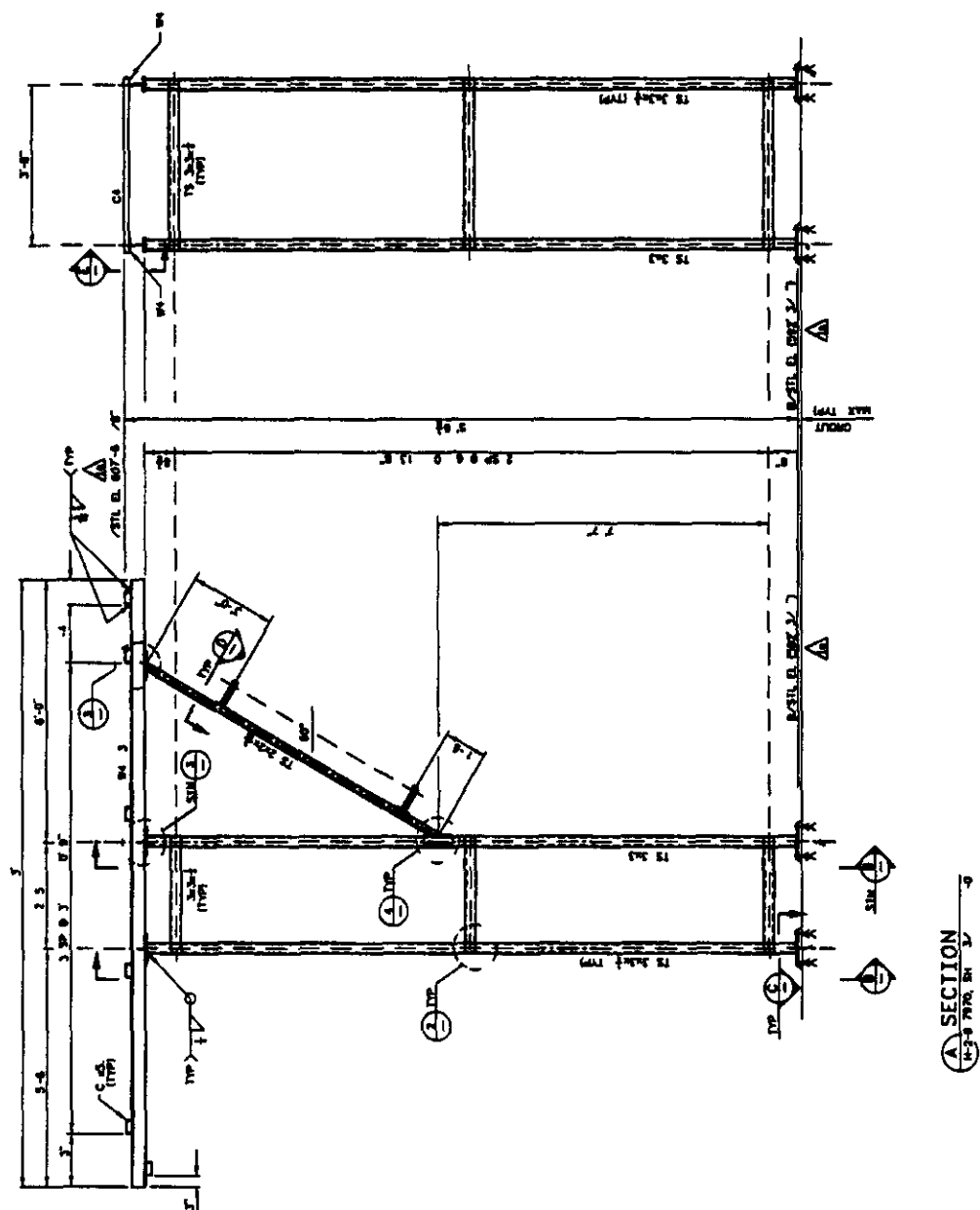


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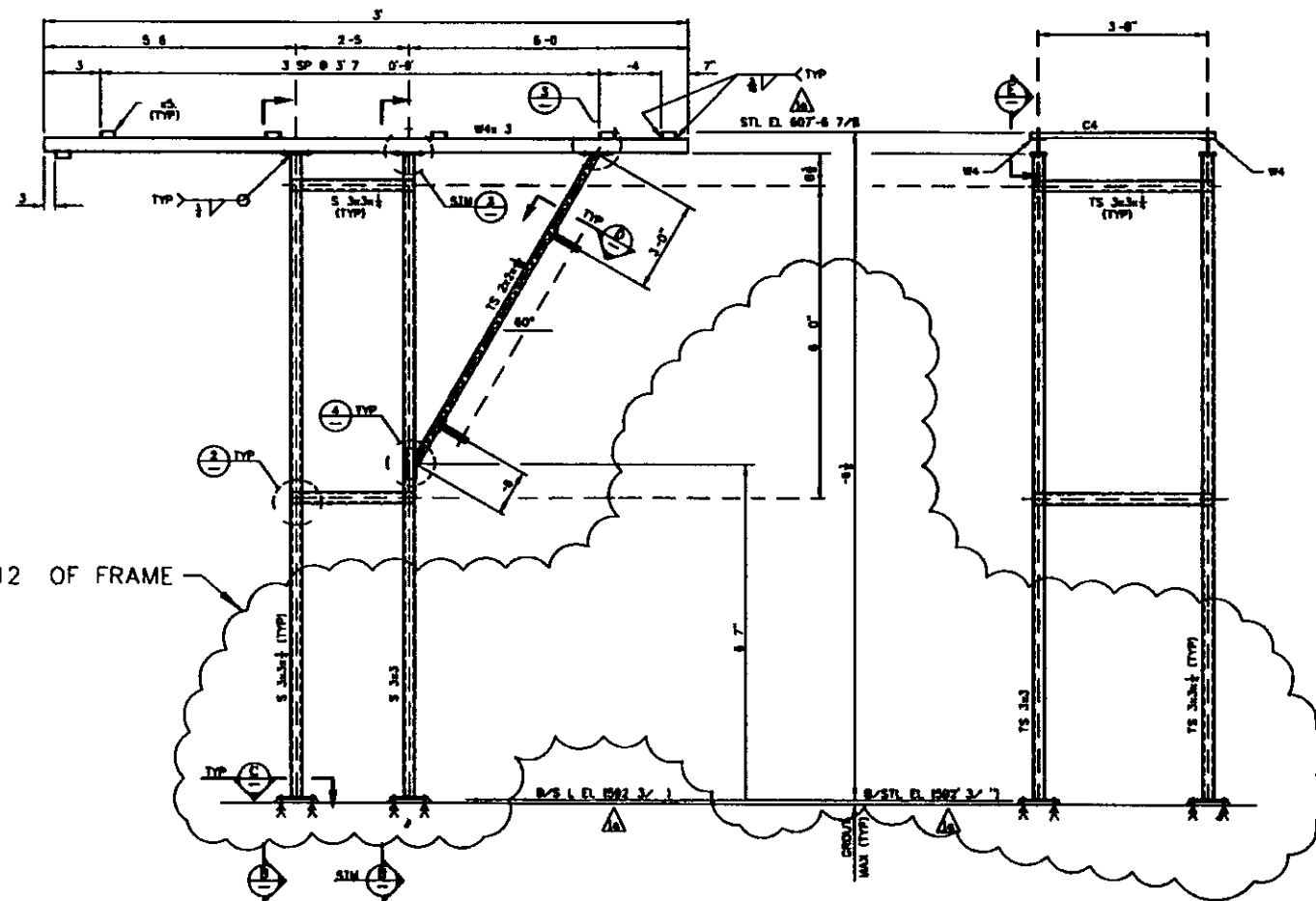
ECN 647247 - 8/27/98
Page 3 of 10
Block 13a Cont d
H 2-817970 Sh 1 Rev 1
Zones A3-F6
IS NOW



IS NOW

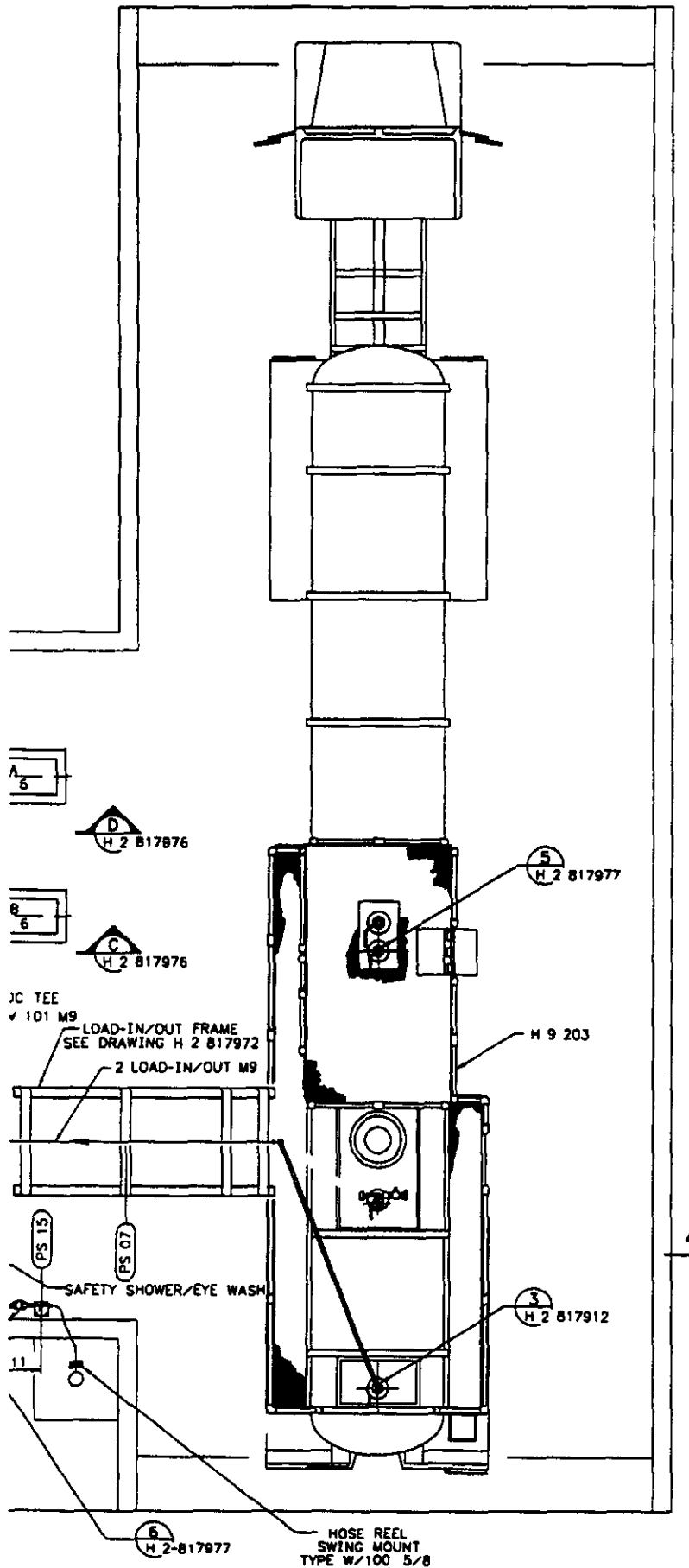


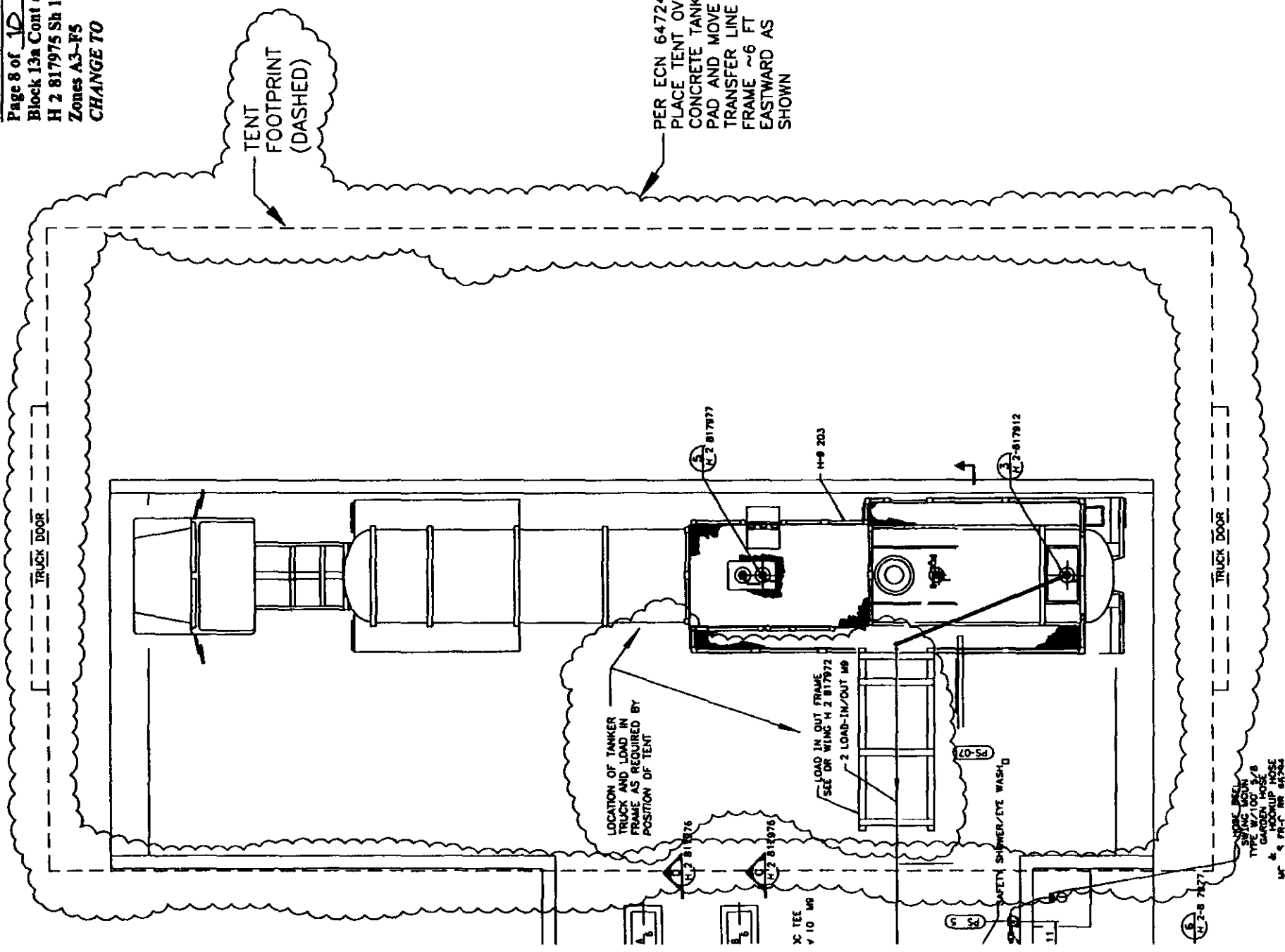
PER ECN 647247
REMOVE BOTTOM 12' OF FRAME

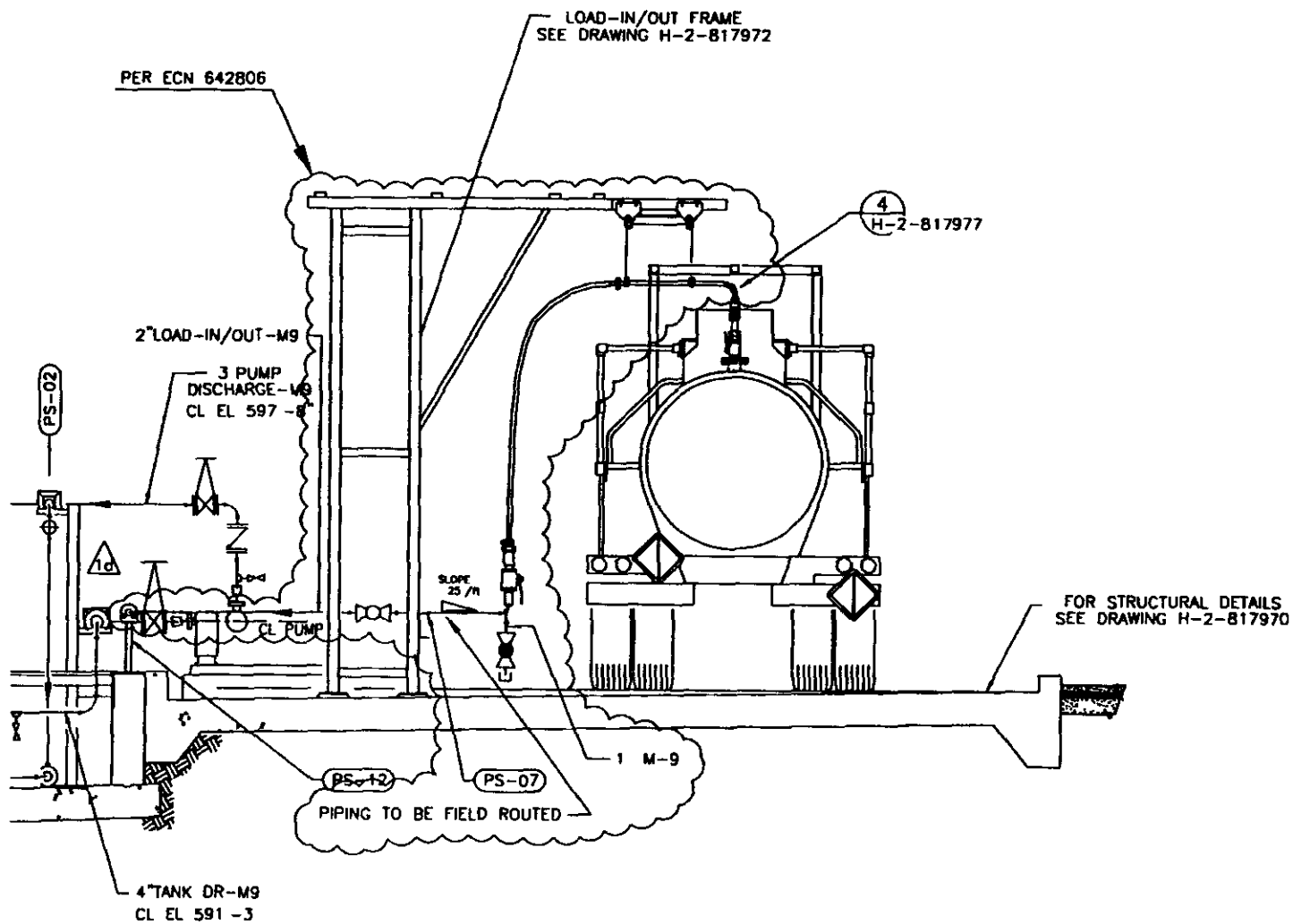


A SECTION
3'-0" 7/8" 5/8"

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Page 6 of 10
Block 13a Cont'd
H 2-817972 Sh 1 Rev 1
Zones C4-F8
CHANGE TO





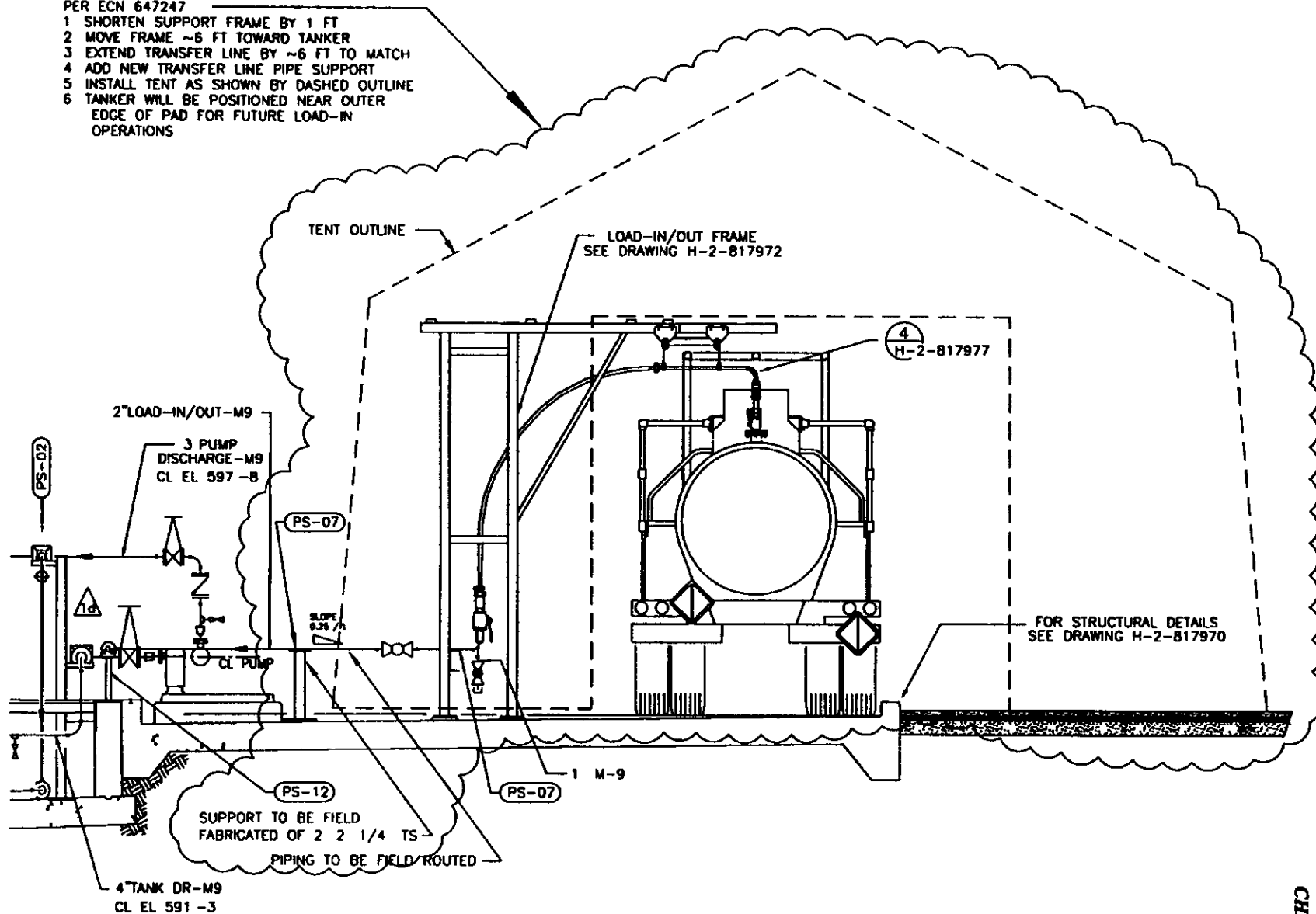


(B) SECTION
H-2-817975 SCALE 3/8 = 1'-0

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Page 9 of 12
Block 13a Cont d
H 2-817976 Sh 1 Rev 1
Zones A4-D6
IS NOW

PER ECN 647247

- 1 SHORTEN SUPPORT FRAME BY 1 FT
- 2 MOVE FRAME ~6 FT TOWARD TANKER
- 3 EXTEND TRANSFER LINE BY ~6 FT TO MATCH
- 4 ADD NEW TRANSFER LINE PIPE SUPPORT
- 5 INSTALL TENT AS SHOWN BY DASHED OUTLINE
- 6 TANKER WILL BE POSITIONED NEAR OUTER EDGE OF PAD FOR FUTURE LOAD-IN OPERATIONS



(B) SECTION
H-2-817975 SCALE 3/8 = 1'-0"

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Page 10 of 10
Block 13a Cont'd
H 2 817976 Sh 1 Rev 1
Zones A4-D6
CHANGE TO